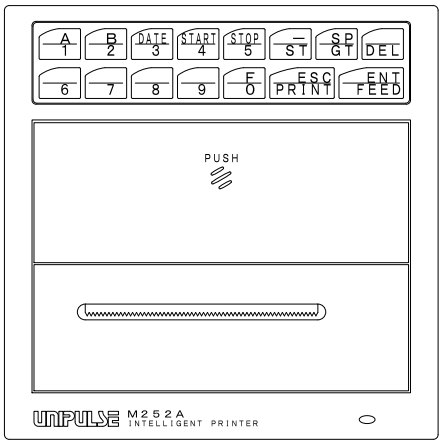
UNIPULSE

M252A *INTELLIGENT DOT IMPACT PRINTER*



Operation manual

Rev. 1.02

BE SURE TO READ BEFORE USE.

Introduction

Thank you for purchasing our intelligent printer M252A.

This product is to be used by connecting it to our loadcell indicators or digital indicators through the SI/F (two-wire serial interface). External equipment data other than our indicators can also be printed by adding optional BCD input or RS-232C interface.

Read this manual and understand the descriptions carefully before use.

After reading the manual, always keep it handy so that it can be referred to at any time.

SAFETY PRECAUTIONS

Be sure to read for safety.

In order to have an M252A Intelligent Printer used safely, notes I would like you to surely follow divide into ⚠ WARNING and ⚠ CAUTION, and are indicated by the following documents. Notes indicated here are the serious contents related safely. Please use after understanding the contents well.

⚠ WARNING

Misuse may cause the risk of death or serious injury to persons.

⚠ CAUTION

Misuse may cause the risk of injury to persons or damage to property.

⚠ WARNING

Warning on design

- For the entire system to function safely when the M252A becomes faulty or malfunctions, provide a safety circuit outside the M252A.

Warning on installation

- Do not modify the M252A. Doing so may cause fire or electric shocks.
- Do not install in the following environments.
  - Places containing corrosive gas or flammable gas.
  - Where the product may be splashed with water, oil or chemicals.

Warning on wiring

- Do not connect a commercial power source directly to the signal input/output terminals.
- Be sure to use crimp contacts for connection to terminal blocks, and never connect bare wires.
- Be sure to ground the protective ground terminal.
- Before performing the following, make sure that no power is applied.
  - Attachment/detachment of connectors of options, etc.
  - Wiring/connection of cables to the signal input/output terminals.
  - Connection to the ground terminal.
- For connection to the signal input/output terminals, check the signal names and pin assignment numbers, and then carry out wiring properly.
- Before applying power, carefully check the wiring, etc.

Warning on wiring

- Use at a proper power supply voltage.
- Do not damage the power cord. Doing so may cause fire or electric shocks.
- Do not touch any signal input/output terminal while applying power. Doing so may cause electric shocks or malfunctions.
- In the case of smoke, an abnormal smell or strange sound, immediately turn off the power, and disconnect the power cable.
- About the built-in lithium battery

  Never disassemble, deform under pressure or throw the battery into fire.The battery may explode, catch fire or leak.

  - Battery

    Model : CR14250SE made by SANYO Electric Co., Ltd.

    Nominal voltage : 3V

    Nominal electric capacity : 850mAh

⚠ CAUTION

Caution on installation

- Do not install in the following environments.
  - Locations exposed to direct sunlight.
  - Where the temperature/humidity exceeds the range of the specifications.
  - Places containing large quantities of salt or iron powder.
  - Where the main body is directly affected by vibrations or shocks.
- Take adequate shielding measures when using at the following locations.
  - Near a power line.
  - Where a strong electric field or magnetic field is formed.
  - Where static electricity, relay noise or the like is generated.

Caution on wiring

- For sensors, external inputs/outputs and options, use shielded cables.

Caution during startup and maintenance

- For turning on/off the power, be sure to keep intervals of 5 seconds or more.

Caution during use

- Do not open the front cover with the power on when replacing the ribbon cassette, etc. The printer may start sudden movement, and you may injure yourself.
- Do not drop foreign objects such as screws inside the printer. If an object is dropped, immediately turn off the power, and completely remove the foreign object before using the printer.
- Do not touch the print head immediately after printing because the print head is hot.
- Never print without paper or a ribbon cassette. Also, do not print out of the paper width.
- Be sure to use a specified ribbon cassette. Use of an unspecified one will cause a failure.
- After replacing the ribbon cassette, check that the ink ribbon is not slack. If slack, turn the knob in the direction of the arrow to remove the slack before operation.
- Use paper appropriate to the specifications.

Caution during disposal

- If you dispose of the product, handle it as industrial waste.

Features of the M252A

■ Dot impact mechanism

A 24-digit dot impact type printer mechanism that allows use of copying paper is loaded.

■ Sophisticated statistical computing functions

In addition to grand totals and sub totals, maximum, minimum, average, standard deviation, histograms, diagrams, etc., can be printed.

■ Economical double print

Thanks to the double printing function by which data from two indicators can be printed and added, statistical computations of a double measuring machine having two measuring heads can be performed by one unit.

■ Histograms and diagrams convenient for quality control

Variations in data can be understood visually.

■ Simple setting in an interactive manner

Setting operation is simple in an interactive manner that requires input of set values according to guidance from the M252A.

■ Code classification

Print data assigned codes (within 6 characters for numerical values and *katakana*) can be classified and added on a code-by-code basis (32 types at the maximum of each ch).

■ Convenient free power supply

100V to 240V AC is acceptable.

■ Perfect data backup

All set values and other data are stored in a nonvolatile memory and lithium-battery-backed-up memory, respectively.

■ Selectable interface

A 2-ch SI/F is equipped as standard. BCD input and RS-232C interface are optionally available. (Only 1ch of either a BCD or RS-232C option can be connected.)

How to review this manual

Manual contents are roughly divided into the following six parts.

1 — 3.....Safety instructions, installation of the printer, test printing and connections with indicators are explained. Basic use of the printer can be understood.

4.....Settings for the printer use are explained.

5.....Methods for connecting optional BCD input and RS-232C interface, and method for use are explained.

6.....Functions for greater use of the printer are explained.

7.....Troubleshooting is explained.

Appendix.....Specifications, consumables, after-sales service of this printer are explained.

Explanatory marks in this manual

	Precautions and restrictions to operate the printer properly. Be sure to read to prevent misoperation.
	Convenience and reference for use of the printer. Reading is highly recommended.
	Operating procedures for printer settings are explained.

Contents of the package

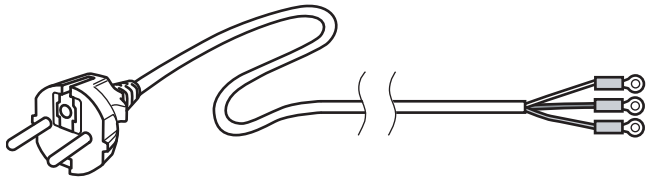
Item name	Quantity
M252A printer body	1
Roll paper	1
Ribbon cassette (One is already installed.)	2
AC cable	1
Instruction manual (this book)	1
Mini screwdriver	1
Roll paper installing bar	1
Control signal input connector 57-30500 DDK (attached with BCD input OP)	1

About the power cable

- The power cable attached to this product as standard equipment can be used in the AC100V power supply in Japan. (Official ratings voltage AC125V)
  Please use the power cable authorized in the country when you use this product outside Japan.

- Our company sells following resistance pressure cable AC250V (European standard product) separately.
  Please purchase it from us when you need after confirming its plug shape/voltage.

CAAC3P-CEE7/7-B2 : CEE7/7 Plug cable (2m)



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1 Before turning on the power

Explanation of the external appearance of the M252A

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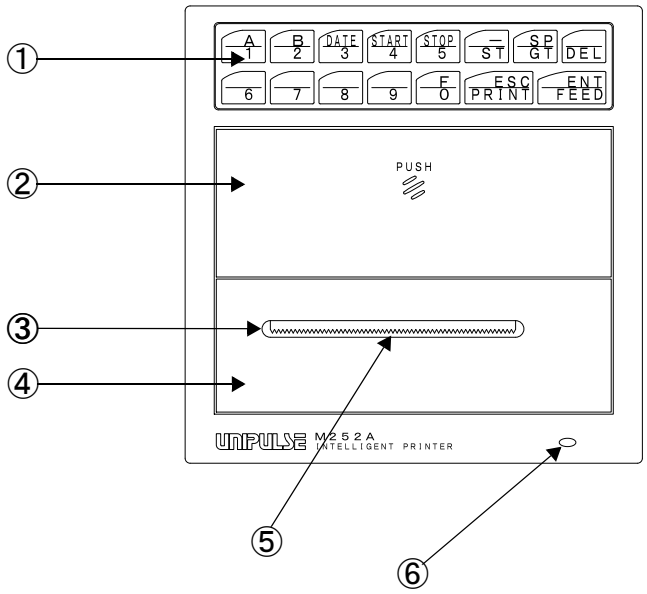
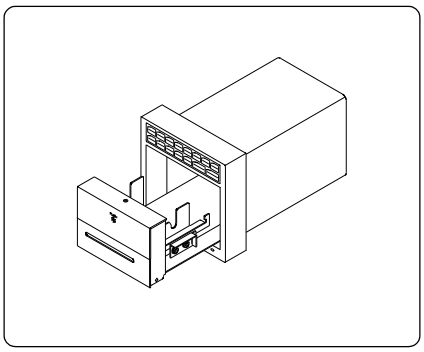
Name and function of each part

Here, the name and function of each part are simply explained.
Detailed explanations of each part are given in its related chapter.

[Front panel]

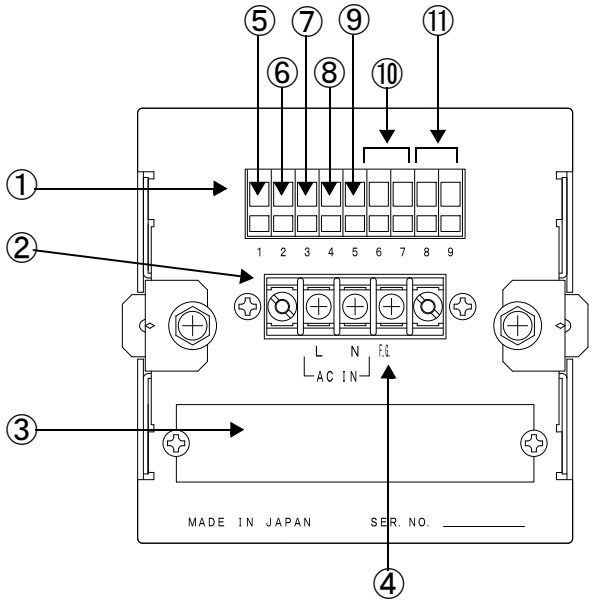


The push panel is open.



Front parts	
Name	Description
① Front panel keys	Press when operating and setting the M252A.
② Push panel	Open when setting paper or installing a ribbon cassette for the M252A. It pops out approx. 3cm forward when pushing the center (mark) of the panel until you hear it click.
③ Paper ejection slot	Printed roll paper is ejected from this slot with print on it.
④ Flip panel	The part below the push panel can be opened frontward. Open when installing a ribbon cassette.
⑤ Paper cutter	Use when cutting roll paper ejected from the paper ejection slot. The cutter is attached to the upper side of the ejection slot.
⑥ Power lamp	The green lamp lights when the power of the M252A is on.

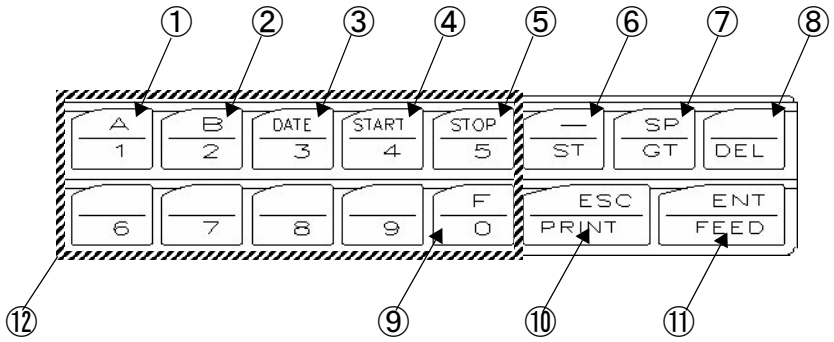
[Rear panel]



Rear parts	
Name	Description
① Input terminal block	Connect various kinds of inputs.
② Power supply terminal block	Connect the power cord. Securely connect the power cord to a power outlet.
③ Option space	Install an option to expand the functions of the M252A. Either BCD input or RS-232C interface can be installed optionally.
④ Frame ground (F.G.)	Earth terminal. Be sure to ground to prevent electrostatic interference, etc.
⑤ (1) COM	Common terminal of the external input terminal block.
⑥ (2) FEED	Feeds when short-circuited with the COM terminal.
⑦ (3) PRINT	Prints when short-circuited with the COM terminal.
⑧ (4) ST	Prints sub totals when short-circuited with the COM terminal.
⑨ (5) GT	Prints grand totals when short-circuited with the COM terminal.
⑩ (6) (7) SI/F Ach	Input terminal for the SI/F (Ach).
⑪ (8) (9) SI/F Bch	Input terminal for the SI/F (Bch).

Front panel key

Key use differs with the modes, but basic use and the meaning of each key, and how to designate it are simply explained below.

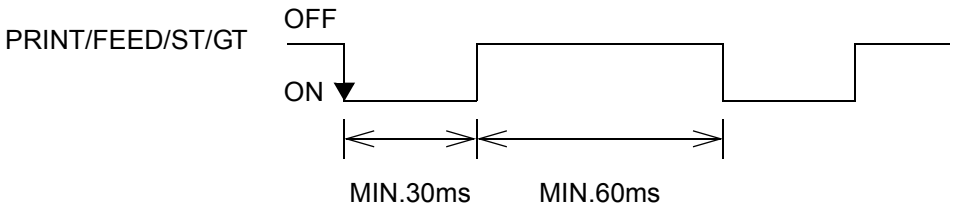


How to designate a key and its function (print mode)	
Key (how to designate)	Description
① A/1 → ENT/FEED (Code A)	Enters the code input (selection) mode of Ach.
② B/2 → ENT/FEED (Code B)	Enters the code input (selection) mode of Bch.
③ DATE/3 → ENT/FEED (Date)	Prints date.
④ START/4 → ENT/FEED (Start)	Starts interval print.
⑤ STOP/5 → ENT/FEED (Stop)	Stops interval print.
⑥ —/ST → ENT/FEED (ST)	Prints sub totals.
⑦ SP/GT → ENT/FEED (GT)	Prints grand totals. The grand totals and printed counts are cleared, and become 0.
⑧ DEL → ENT/FEED (Del)	The last printed data is printed again, and is deleted from the target of the grand totals (sub totals).
⑨ F/0 (Function)	Enters the setting mode.
⑩ ESC/PRINT (Print)	Prints the current value.
⑪ ENT/FEED (Feed)	Feeds paper by one line.

How to designate a key and its function (setting mode)	
Key (how to designate)	Description
⑥ [－ ST] (Hyphen)	Inputs a hyphen.
⑦ [SP GT] (SP)	Inputs a space.
⑧ [DEL] (No mark)	Goes to the next input position.
⑩ [ESC PRINT] (Escape)	Cancels an input value or set value.
⑪ [ENT FEED] (Enter)	Accepts an input value or set value.
⑫ [A 1] ～ [F 0] (Numerical keys)	Use for inputting numbers, alphabet and *katakana*.

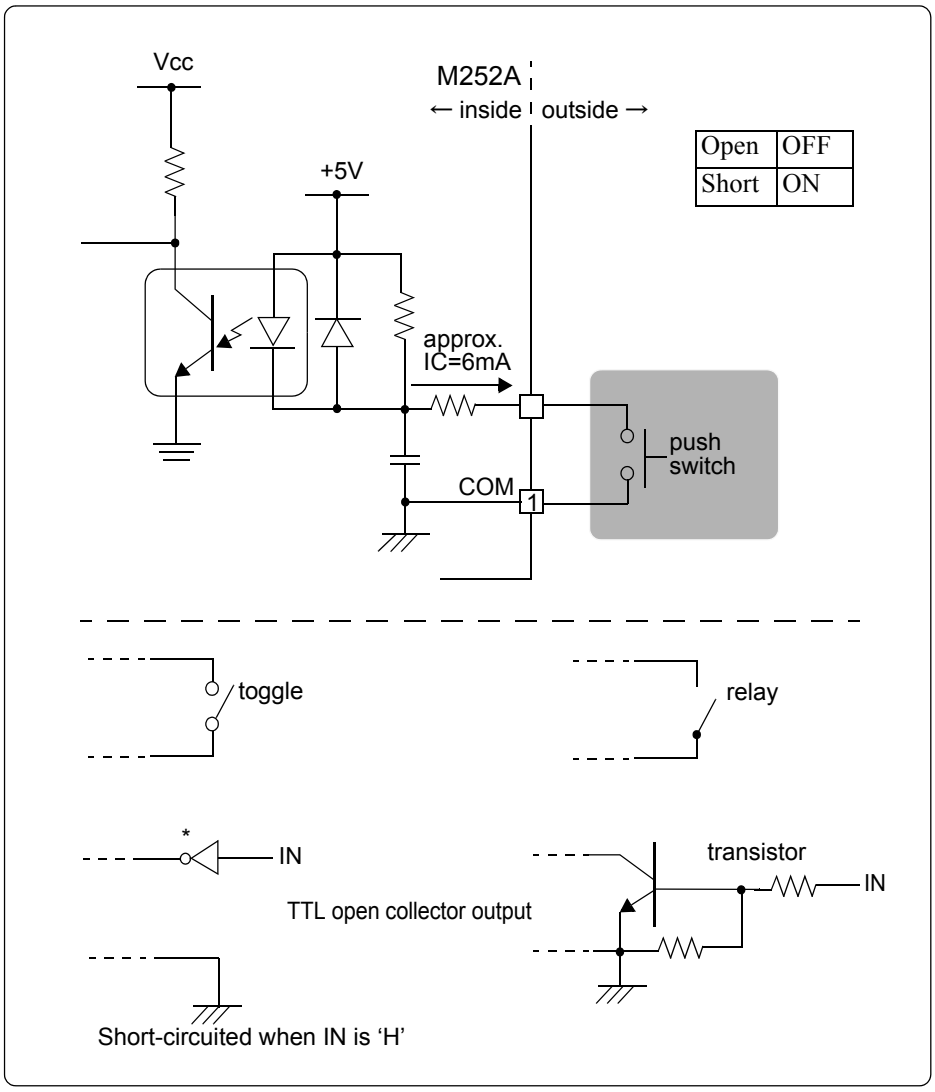
For character input in code/code table registration, see "Code name registration performance with front panel keys"(page 57), and "Code table registration performance"(page 59).

The following shows a timing diagram of the external input terminals on the panel.



Input equivalent circuit

A signal is inputted to the signal input circuit by short-circuiting or opening the input terminal and the COM terminal. Short-circuiting is effected by means of a contact (such as a relay or a switch) or a noncontact (such as a transistor or an open-collector TTL).



2 Printer preparations

Installing a ribbon cassette and roll paper

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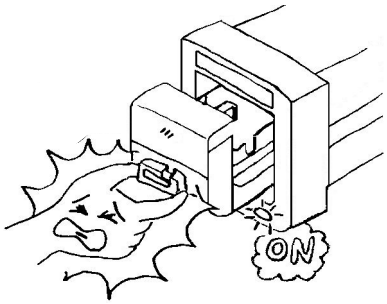
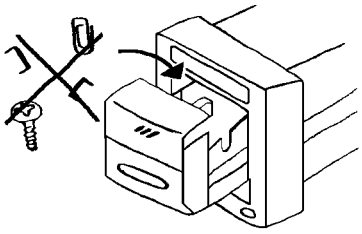
Installing a ribbon cassette

Use the PR350/10 (optional accessories) ribbon cassette.
Two ribbon cassette are attached (One ribbon cassette has already been installed at the time of delivery.) .

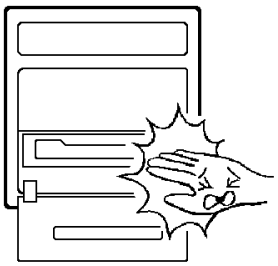
Note



■Do not open the front cover with the power on when replacing the ribbon cassette, etc. The printer may start sudden movement, and you may injure yourself.

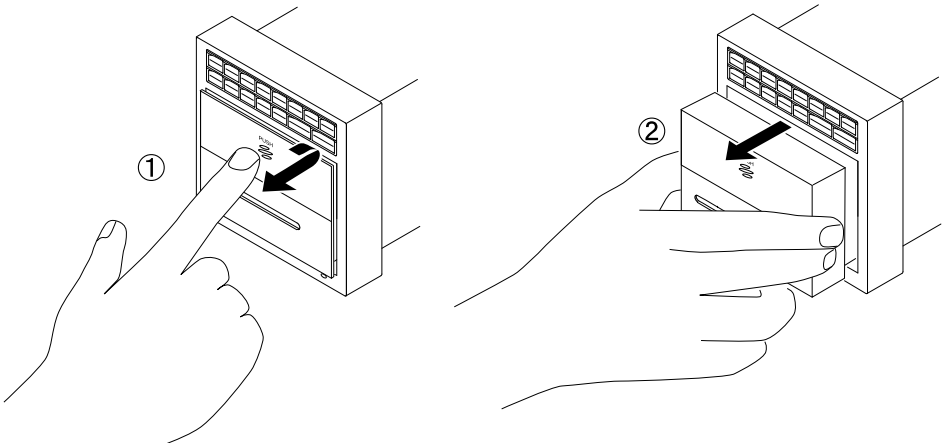


■Do not drop foreign objects such as screws inside the printer. If an object is dropped, immediately turn off the power, and completely remove the foreign object before using the printer.

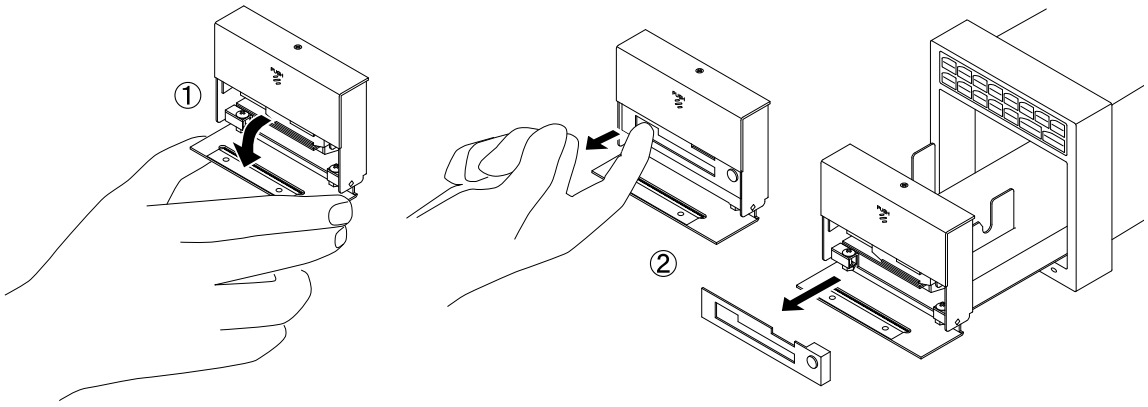


■Do not touch the print head immediately after printing because the print head is hot.

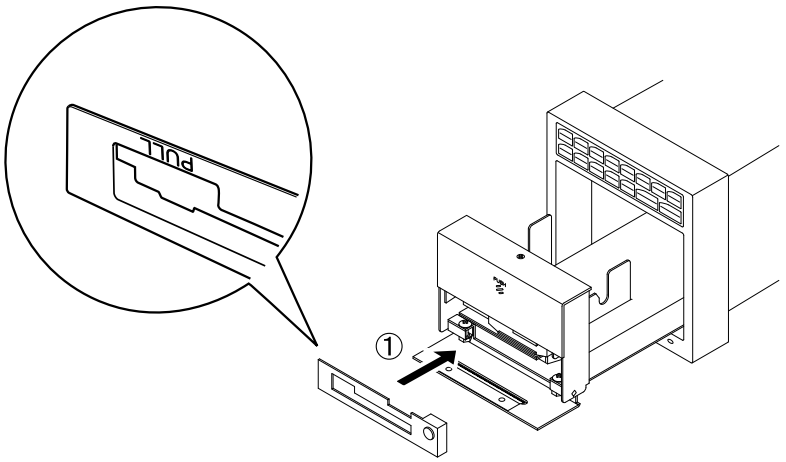
1. Push the center (mark) of the push panel with your finger until you hear it click. The push panel pops out forward. And draw out the push panel.

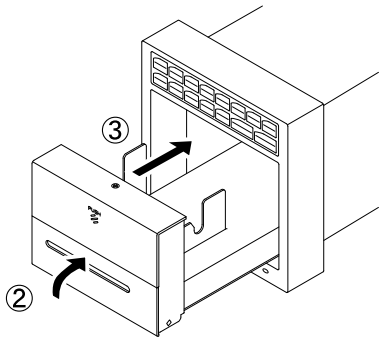


2. Open the flip panel downward. Catch the upper left of the installed ribbon cassette with your finger（with your fingernail）, and pull and remove it frontward.



3. Install a new ribbon cassette, being careful about its orientation.
Turn the ribbon cassette upside down (in the direction that reverses the PULL marking as shown below), and push it in until you hear it click. Then close the flip panel, and push in the push panel firmly until you hear it click.



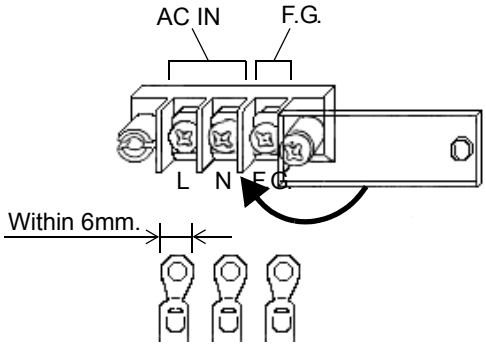


Installing the power cord

For connection to terminal blocks, use cables with crimp contacts (M3) as shown in the illustration without unbraiding their ends.

AC spec.

Connect the AC power cord. The input voltage is 100V - 240V AC. The frequency is 50/60Hz.



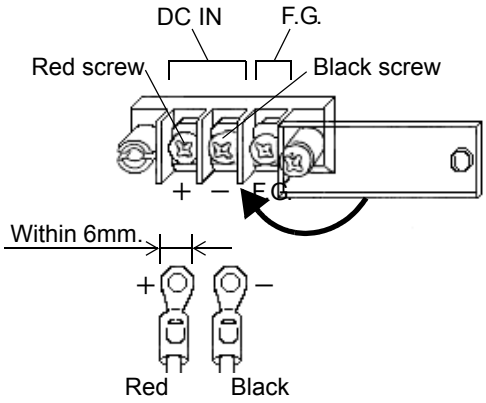
■ A parallel two-core power cable with crimp contacts is attached to the product.

Note

Be sure to ground the F.G. terminal.

DC spec. (Depending on the request at the time of order)

Connect the positive (+) side of the power source to the red screw side of the terminal block on the back of the M252, and its negative (-) side to the black screw side.The input voltage is 12V-24V DC.



■ No DC power cable is included.

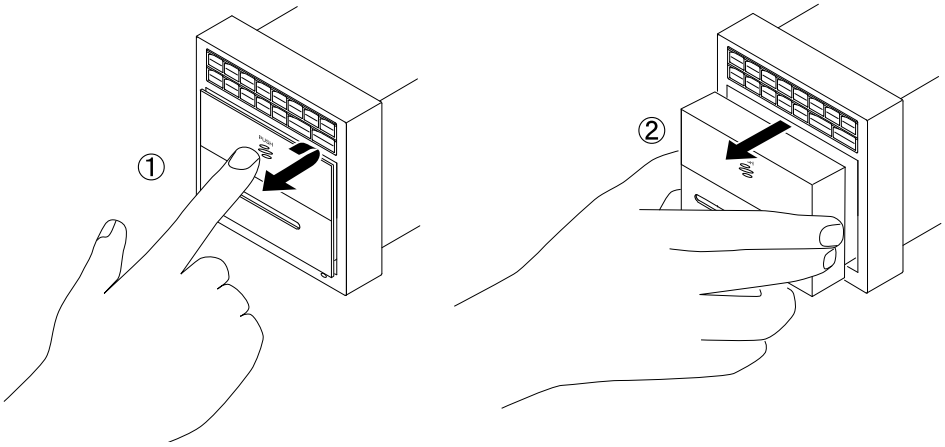
Note

Be aware that the voltage drops depending on the wire thickness and length.Also, never input an AC power source. Doing so will cause a failure.

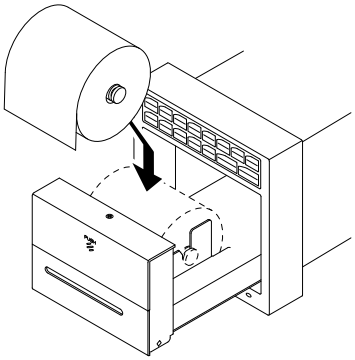
Installing roll paper

No roll paper has been installed at the time of delivery. Referring to the following procedures, install roll paper.

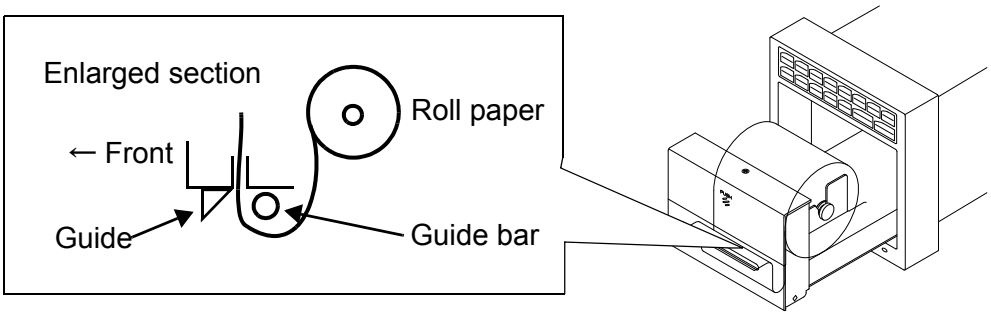
1. Push the center (mark) of the push panel with your finger until you hear it click.
   The push panel pops out forward. And draw out the push panel.



2. Insert the roll paper installing bar into roll paper. Direct the paper winding direction as shown in the illustration, and set it to the bearing.



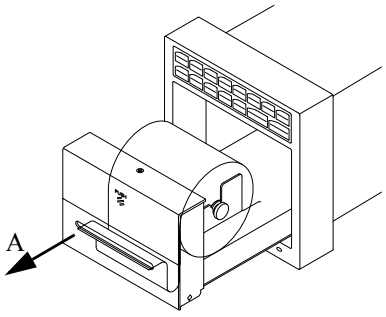
3. Pass the end of the roll paper under the guide bar at the lower part of the flip panel, and insert it between the guide bar and guide.
Press the ENT FEED [FEED] key with the paper inserted, and release the key when the paper comes out of the paper ejection slot.



4. Remove the flexure of the roll paper, and push in the push panel firmly until you hear it click.

Note

It may cause some trouble if you pull the paper fast or backward when the paper jam occurred during the paper setting.
Please pull the paper in the direction of the arrow A slowly and straight to remove it after stopping the paper feed.
Cut the power then on again when it doesn't return normally after removing the paper.



3 Connecting with indicators

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SI/F (two-wire serial interface)

The M252A is equipped with a SI/F interface to connect it with UNIPULSE-manufactured digital indicators or load cell indicators as standard. In this chapter, connection with indicators through the SI/F is explained.

About the SI/F

The UNIPULSE's original SI/F is an interface to connect our F series indicators and printer, or peripheral equipment, such as an external display. SI/F-compatible products can simply be connected and used without a wareness of data content and the hardware specifications.

Specifications of the SI/F

Connection	Two-wire, nonpolar	
Transmission distance	Parallel two-core cable: 30m Shielded cable: 300m	
Transmission data	Measuring/metering data, status information (result of comparison, MD, zero alarm, etc.), error information, automatic print command, etc.	
Signal standards	Signal level	Photocoupler-isolated current signal
	Transmission system	Start/stop synchronous system
	Transmission speed	600bps
	Data bit	8bit
	Start bit	1bit
	Stop bit	1bit
	Parity	ODD

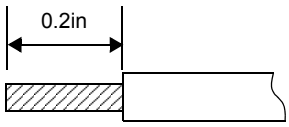
About the SI/F of the M252A

The M252A is equipped with a 2-ch SI/F (Ach and Bch). 6-7PIN and 8-9PIN on the rear terminal block correspond to Ach and Bch, respectively.

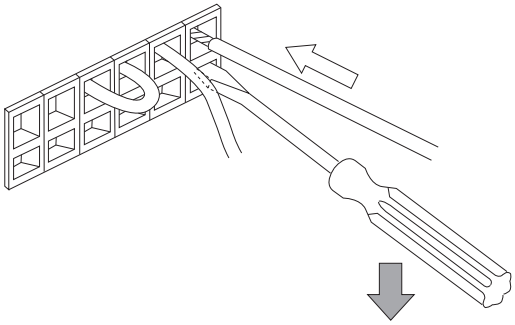
Connecting through the SI/F

The M252A is equipped with a 2-ch SI/F. Parallel two-core cables or captyre cables are adequate for use. The SI/F has no polarity.

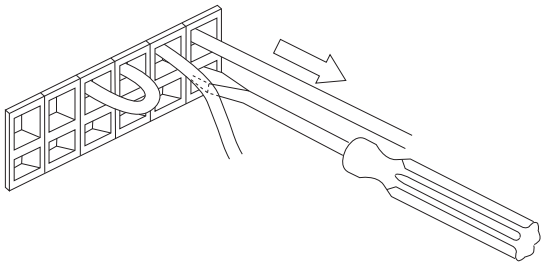
1. Strip the casing 0.2in (6mm) on the cable to be connected.



2. Twist the bare wire to fit the terminal hole.
3. Insert the supplied screwdriver into the lower hole and lightly hold it down.
4. Insert the twisted wires into the upper hole.



5. Pull the screwdriver out from the lower hole.
6. Make sure cable is clamped securely and does not come out with a slight tug.



Note

■ Sectional area of electric wires that can be connected to terminal blocks are 0.2 - 2.5mm^2.

■ Do not attach crimp contacts to the ends of electric wires or solder them.

■ If you connect two or more electric wires, twist them beforehand.

■ Be aware that the orientation of the terminal block is upside-down to our digital indicators (F366, etc.)

Try to print

The M252A prints when any of the following conditions are met.

1. When the ESC PRINT [PRINT] key is pressed. (*)
2. When No. 3 (PRINT) and No. 1 (COM) on the terminal block are short-circuited. (*)
3. When an automatic print command is sent from the SI/F.
4. When a print command is input to the RS-232C.
5. At intervals set for interval print. (*)

* In the cases of 1, 2 and 5, the M252A does not print if no print data is input.

About input ch's

The M252A has two data input ch's. When using both ch's, select “8. Double print” or “9. Double print with count” for [07: Print Every Format].

The following table shows input data to be printed.

- ・① : Data input to SIF Ach is printed.
- ・② : Data input to SIF Bch is printed.
- ・OP : Data input to an option (BCD input or RS-232C) is printed.
- ・Single print : When the [Print Every Format] setting is not “Double print”.
- ・Double print : When the [Print Every Format] setting is “Double print”.
- ・Shaded part : The alarm (buzzer) sounds.
  See "Print data input ch's and alarm sound"(page 17) for details.

	Input data	Single print		Double print	
		Ach	Bch	Ach	Bch
Without OP	SIF Ach	①	×	①	×
	SIF Bch	×	×	×	②
	SIF Ach + Bch	①	×	①	②
With OP	SIF Ach	①	×	①	×
	SIF Bch	×	×	×	②
	SIF Ach + Bch	①	×	①	②
	SIF Ach + OP	①	×	①	×
	SIF Bch + OP	OP	×	OP	②
	SIF Ach + Bch + OP	①	×	①	②
	OP	OP	×	OP	×

Print data input ch's and alarm sound

In the case of single print

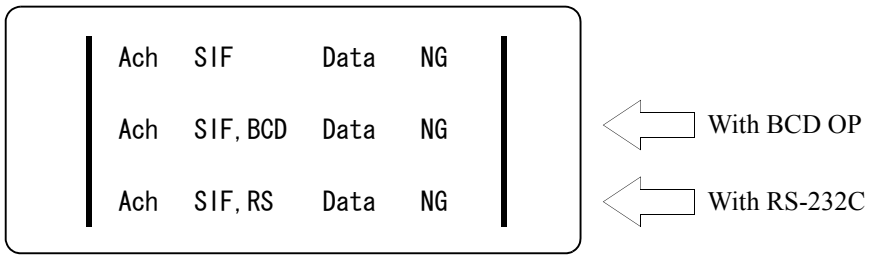
In the case where the input ch setting is single print (the [Print Every Format] setting is not double print), if printing is attempted without print data input from Ach or an optional interface, the alarm (buzzer) will sound, resulting in error printing.

In the case of double print

In the case where the input ch setting is double printing (the [Print Every Format] setting is double print), if printing is attempted without print data input from both SIF Ach and an optional interface, and without print data input from SIF Bch, the alarm (buzzer) will sound, resulting in error printing.
However, printing of the input ch('s) will be produced.

What is printed without valid data at Print-Every time

In the case of no Ach data (single print / double print)



In the case of no Bch data (double print)

Option input can be made only with Ach. If data input is made by both of option input and SI/F input, priority is given to the SI/F.

M E M O

4

For greater use of the printer

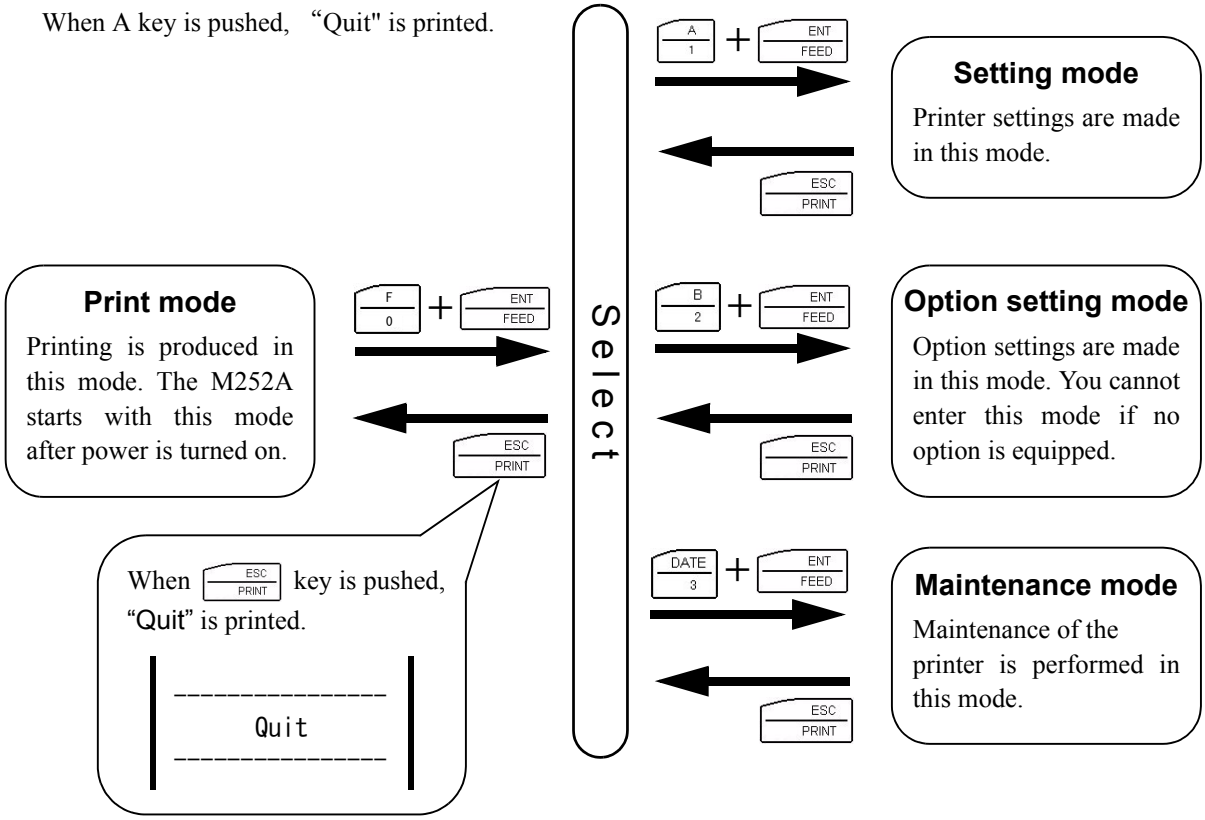
Explanation of each setting

■ Basics of settings 20
■ Details of each setting 24

Basics of settings

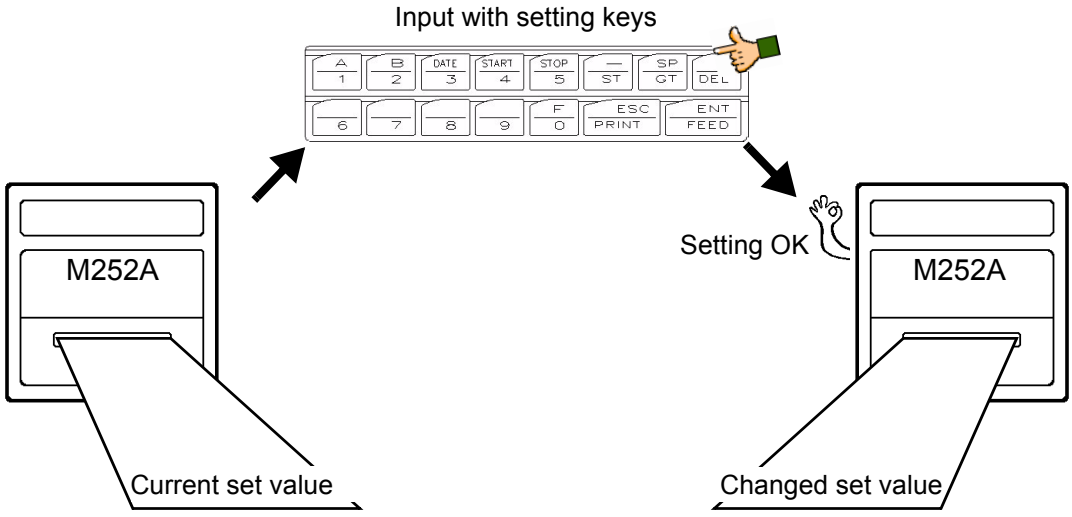
Mode configuration of the M252A

The M252A consists of four modes. See the "Setting mode list"(page 80).


When A key is pushed, “Quit" is printed.
A 1 + ENT FEED
ESC PRINT
Setting mode
Printer settings are made in this mode.
Select
Print mode
Printing is produced in this mode. The M252A starts with this mode after power is turned on.
F 0 + ENT FEED
ESC PRINT
B 2 + ENT FEED
ESC PRINT
Option setting mode
Option settings are made in this mode. You cannot enter this mode if no option is equipped.
When ESC PRINT key is pushed, “Quit” is printed.
Quit
DATE 3 + ENT FEED
ESC PRINT
Maintenance mode
Maintenance of the printer is performed in this mode.

Setting method of the M252A

The M252A adopts an interactive manner for making various settings. The current set value is indicated by printing. You (user) should input a response with keys to proceed with the setting.



Basic operation of settings

The basic operating procedures for actually making settings of the M252A are described below. Here, the "Automatic Print ON/OFF" setting is made as an example.

1. Press [F] → [ENT], and the following is printed.
   To enter the setting mode, press [1] → [ENT] successively.

```
Cancel/End      -->  ESC
Maintenance     -->  3-ENT
Option Setting  -->  2-ENT
Setting         -->  1-ENT
==========================
          Select
==========================
```

operating

To enter the setting mode:	[1] → [ENT]
To enter the option setting mode:	[2] → [ENT]
To enter the maintenance mode:	[3] → [ENT]
To cancel or end:	[ESC]

※ For details of the option setting mode and maintenance mode, see their respective explanations.

2. Upon entry of the setting mode, the following is printed. Since the Date/Time setting comes up when you enter the setting mode, move to the desired item.

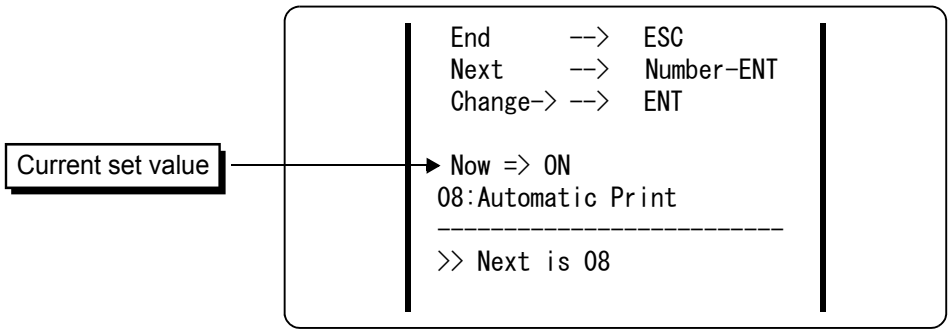
```
End        -->  ESC
Next       -->  Number-ENT
Change->   -->  ENT

Now => 2000/06/05 12:00
01:Date/Time
--------------------------


--------------------------
          Setting
--------------------------
```

operating

To make the Date/Time setting:	[ENT]
To make other settings:	[Setting No.] → [ENT]
To end the setting mode:	[ESC]

Since the Automatic Print ON/OFF setting No. is [08], press [F] [8] [08] or [8] [8] → [ENT].

3. Upon entry of the Automatic Print ON/OFF setting, the following is printed. The current set value is indicated on the "NOW" line.



The current value is "Automatic Print ON".
Change the set value to "OFF".

operating

To make the Automatic Print setting: [ENT]

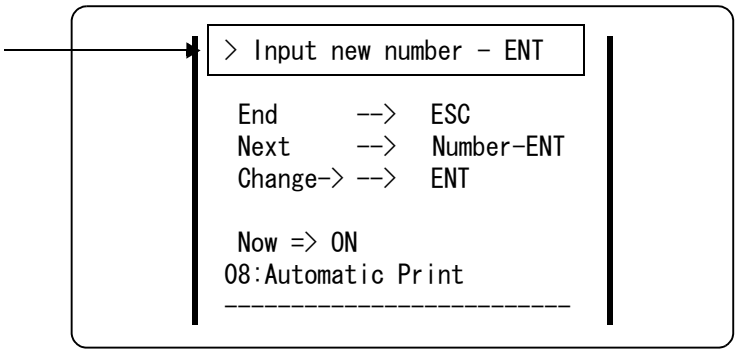
To make other settings: [Setting No.] → [ENT]

To end the setting mode: [ESC]

For changing the set value, develop an input waiting state with the [ENT] key.

4. Since the following is subsequently printed, change the set value.

This part is printed. The following lines are printed with "3".



operating

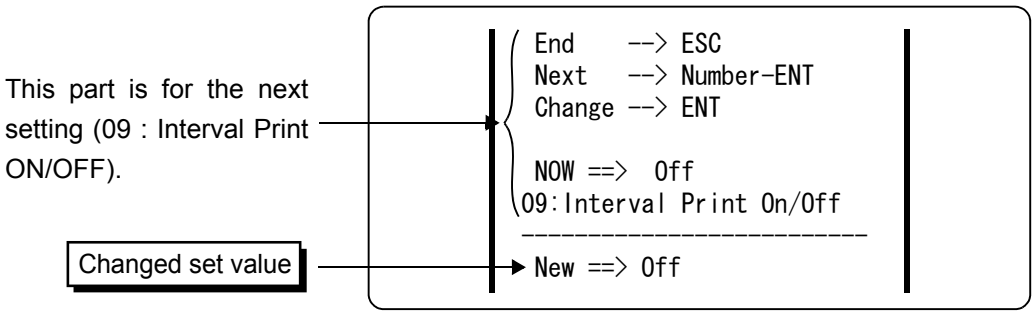
To change [Setting No.] → [ENT]

Since the OFF set value No. is [0],
press [0] → [ENT].

About setting Nos.

Setting Nos. facilitate identification of each setting.
See detailed explanations of each setting or the appendix "Setting mode list"(page 80).

5. The changed set value is printed.


This part is for the next setting (09 : Interval Print ON/OFF).
Changed set value
End --> ESC
Next --> Number-ENT
Change --> ENT
NOW ==> Off
09:Interval Print On/Off
New ==> Off

After changing the setting, go to the next setting (step 2 and 3).

To make the Interval Print ON/OFF setting:	[ENT]
To make other settings:	[Setting No.] → [ENT]
To end the setting mode:	[ESC]

Cautions in setting

Some setting items are dependent on one another such that one setting does not become valid or cannot be made until another setting is turned ON.
The setting items having a mutual dependence are shown below.

Dependence between settings

Source setting	Target setting	Description
06: Print Every ON/OFF	07: Print Every Format	The Print Every Format setting is not valid until the Print Every ON/OFF setting is turned [ON].
07: Print Every Format	20: Batch Total ON/OFF	If the Print Every Format setting is made at [8], [9] or [10], the Batch Total ON/OFF setting cannot be turned [ON].
20: Batch Total ON/OFF	07: Print Every Format	The Print Every Format setting [8], [9] or [10] cannot be selected until the Batch Total ON/OFF setting is turned [OFF].
22: Code Selection	24: Code Table Selection Ach 25: Code Table Selection Bch	The Code Table (A/Bch) setting cannot be made until the Code Selection setting is made at [2] or [3].

Details of each setting

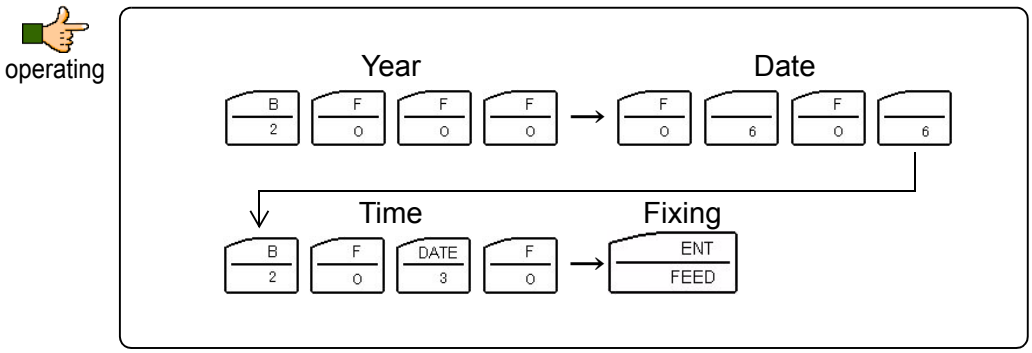
The details and operating method of each setting are explained below. For how to enter the setting mode and its operating method, see the “Basics of settings” described in the previous chapter.

01: Date/Time

Change the date and time.
The date and time of the M252A are factory-set.
Correct it when it is necessary.

Name of setting	01: Date/Time
Initial value	The current time has been set at the time of delivery.
Input format	Y Y Y Y M M D D h h m m [ENT] Year Date Time (Fixed)
Caution	・Input all four digits for the year. ・Input "0" at the start of a one-digit month/date. ・Input the time on a 24-hour basis, and input "0" at the start of one-digit hours/minutes. ・A battery is necessary for operation of the clock. The life of the battery is approx. 8 years.

Example of setting - Setting 8:30 p.m., June 6, 2000 -



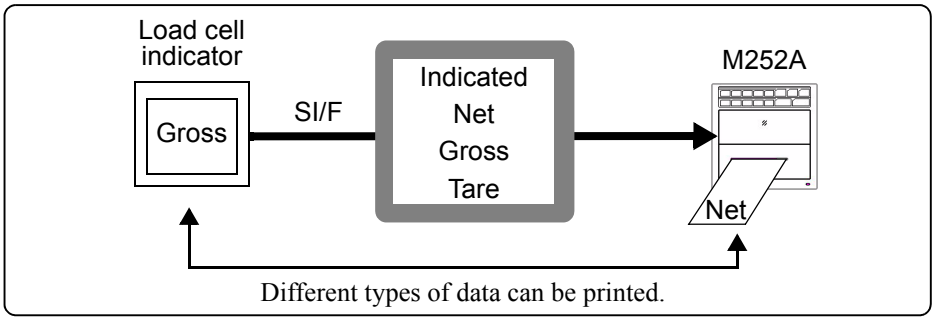
02, 03: Print Data Selection Ach/Bch

Select the type of data to be printed for each ch.
Four types of data can be selected.

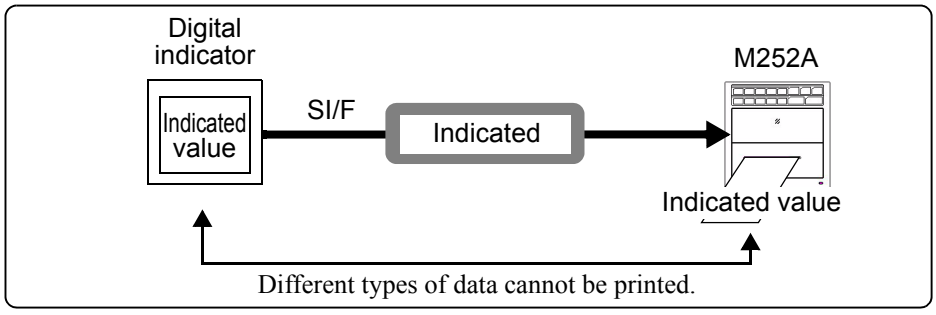
Name of setting	02: Print Data Selection Ach 03: Print Data Selection Bch
Selection item	0. Gross (initial value) 1. Net 2. Tare 3. Indicated
Reference	・When printing values indicated by load cell indicators, normally set the M252A at [3. Indicated]. Select Gross, Net or Tare only when you want to specifically print these. ・When printing values indicated by digital indicators, normally set the M252A at [3. Indicated].
Caution	The type of print data selected here is valid only when data is printed through the SI/F. When data is printed through the BCD input or RS-232C interface, input data is printed irrespective of the type selected here.

SI/F and indicators

Load cell indicator ..... The load cell indicator connected through the SI/F sends indicated, net, gross and tare data at intervals of approx. 0.3 sec. irrespective of the indicated value at the time. Since data to be printed can be selected from it on the printer side, data other than the indicated value can be printed.



Digital indicator..... The digital indicator connected through the SI/F sends the indicated value at that time at intervals of approx. 0.3 sec.



04, 05: Unit Selection Ach/Bch

Select the unit to be printed on Ach/Bch.
43 types of data can be selected.

Name of setting	04: Unit Selection Ach 05: Unit Selection Bch
Selection item	See the "List of unit settings"(page 82).
Initial value	02. kg
Caution	When "Double size" is selected under Print Every Format, the unit is printed only up to four characters. If a unit of five or more characters is selected, only the first four characters are printed.

06: Print Every ON/OFF

Select whether or not to print on roll paper.

Name of setting	06: Print Every ON/OFF
Selection item	0. OFF 1. ON (initial value)
Caution	・Since print data is stored in internal memory irrespective of whether the setting is ON or OFF, sub totals and grand totals are not affected. ・If the setting is OFF, no printing will result.

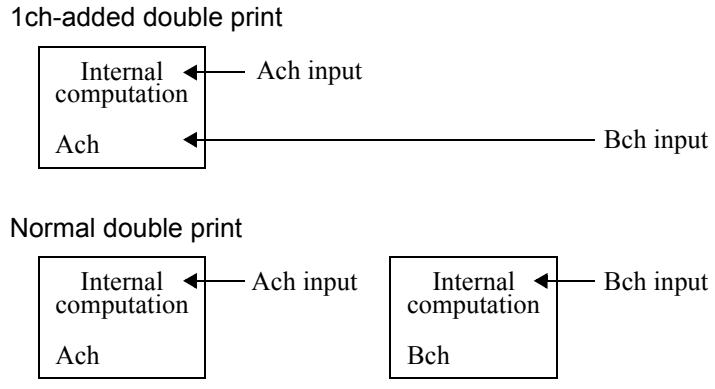
Details of setting

ON..... Data is stored in internal memory with printing on roll paper.

OFF..... Data is simply stored in internal memory without printing on roll paper.

07: Print Every Format

Select the print format of data.
13 types of print format can be selected.

Name of setting	07: Print Every Format
Selection item	0. Standard (initial value) 1. With time 2. With code 3. With time & code 4. With date 5. With date & code 6. Diagram 7. Double size 8. Double print 9. Double with cnt 10. Double with code 11. Ach <-- A or B 12. Through print
Reference	Ach and Bch are the same in unit, the grand total all of both ch's is printed after printingthe total of each ch. If the units are different, the grand totals of both ch's are not printed.
Caution	・When "Double size" is selected under Print Every Format, only the first four characters are printed properly due to the print width. Be careful when selecting the following units. 20:kg/m^3 24:kg•cm 30:kg/cm^2 ・The count of "Ach <-- A or B" is numbered serially. (Selection item 11) Ach and Bch (SIF Ach) input data are all computed as Ach. Make the unit and decimal place settings of Ach and Bch identical. Otherwise, totals will not be able to be printed accurately.  ・If "12. Through print" is selected with no RS-232C interface (option), "ERROR" is printed, resulting in no selection.

Examples of print

0. Standard (count, data)

Count	input data
1503	500.5kg
1502	450.2kg
1501	1200.0kg
1500	-385.8kg
1499	55.0kg
1498	0.0kg
1497	1000.2kg
1496	666.6kg

1. With time (time, count, data)

Time	Count	Input data
14:30	1503	500.5kg
14:22	1502	450.2kg
14:00	1501	1200.0kg
13:48	1500	-385.8kg
12:11	1499	55.0kg
10:03	1498	0.0kg
9:20	1497	1000.2kg
6:05	1496	666.6kg

2. With code name (code name, count, data)

Code name	Count	Input data
FGHI	7503	500.5kg
FGHI	7502	450.2kg
JKLM	2002	1200.0kg
FGHI	7501	-385.8kg
NOPQR	1502	55.0kg
JKLM	2001	0.0kg
NOPQR	1501	1000.2kg
STUV	1001	666.6kg

3. With time & code (time, code name, count, data)

Code name / Time	Count	Input data
NOPQR	1502	55.0kg
11:27		
JKLM	2001	0.0kg
11:26		
NOPQR	1501	1000.2kg
11:26		
STUV	1001	666.6kg
11:25		

4. With date (date, time, count, data)

Count / Date	Time	Input data
4		500.4kg
2000/10/18	13:45	
3		498.5kg
2000/10/18	13:15	
2		502.1kg
2000/10/18	12:45	
1		501.0kg
2000/10/18	12:15	

5. With data & code name (date, time, code name, count, data)

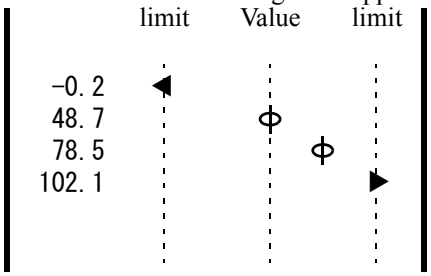
Code name / Date	Count / Time	Input data
SOLT	4	6643kg
2000/10/18	19:30	
SOLT	3	5589kg
2000/10/18	18:30	
SOLT	2	6002kg
2000/10/18	17:30	
SOLT	1	5010kg
2000/10/18	12:15	

Examples of print

6. Diagram

Input data　Displacement diagram

Lower limit　Target Value　Upper limit



Example { TARGET: 50.0kg
RANGE: 50.0kg

7. Double size print (data)

Input data

500.5kg
450.2kg
1200.0kg
-385.8kg
55.0kg

Input data is printed horizontally double size. However, the unit can be printed only up to four characters.

8. Double print

Ach input data	Bch input data
	389.3kg
500.0kg	
	78.1kg
1444.0kg	
	420.2kg
150.5kg	

9. Double print with count

Count	Ach input data	Count	Bch input data
		3	389.3kg
46	500.0kg		
		2	78.1kg
45	1444.0kg		
		1	420.2kg
44	150.5kg		

10. Double print with code

Code	Ach input data	Code	Bch input data
		HIGK	389.3g
STU	300.0kg		
		HIGK	789.3g
STU	450.0kg		
		HIGK	389.3g
STU	500.0kg		

11. Ach <-- A or B

Count	Ach input data	Count	Bch input data
		7	389.3kg
6	300.0kg		
		5	789.3kg
4	450.0kg		
		3	389.3kg
2	500.0kg		

12. Through print

Characters sent from the RS-232C interface in ASCII code are printed as they are. Start/stop through print with the [ESC PRINT] [PRINT] key. If the [ESC PRINT] [PRINT] key is pressed during through print,an offline state will result, so that through print cannot be performed. If the [ESC PRINT] [PRINT] key is ressed again, an online state will result, so that through print can be performed. FEED (paper feed) is valid only in an offline state.

08: Automatic Print ON/OFF

Printing can be automatically produced by sending a print command from the SI/F or RS-232C interface to the M252A. Select whether this Automatic Print is ON or OFF.

Name of setting	08: Automatic Print ON/OFF
Selection item	0. OFF 1. ON (initial value)
Caution	・Printing is always produced in the following conditions irrespective of whether Automatic Print is ON or OFF. ・When the ESC PRINT [PRINT] key is pressed. ・When the PRINT terminal and COM terminal to the rear panel are short-circuited. ・Since an automatic print command cannot be given from the BCD input, it is necessary to give a print command on the printer for printing print data from the BCD input.

Details of settings

ON..... Printing is produced when a print command is sent from the SI/F or RS-232C interface. For the print commands from the SI/F and RS-232C interface, see the instruction manual of each indicator and "RS-232C interface(option)"(page 49).

OFF..... Printing is not produced with a print command from the SI/F or RS-232C interface.

■ For the print command from the SI/F, see the instruction manual of each connection indicator.

■ For the print command from the RS-232C interface, see "RS-232C interface(option)"(page 49).

09: Interval Print ON/OFF

Select whether or not to print at fixed intervals.

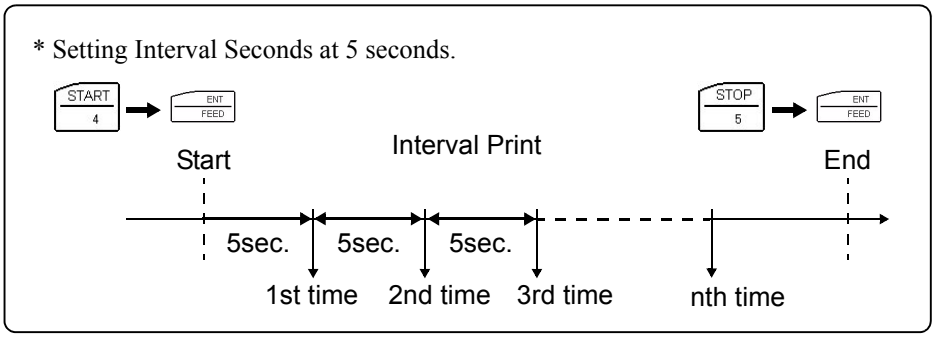
Name of setting	09: Interval Print ON/OFF
Selection item	0. OFF (initial value) 1. ON
Caution	Keys other than STOP 5 [STOP] (to stop Interval Print) and ENT FEED [ENT] cannot be used during Interval Print.

Details of settings

ON..... Print is automatically produced at intervals of seconds set under [10: Interval Seconds] (See below). Printing is not produced with a print command from the SI/F or RS-232C interface.

OFF..... Interval Print is not performed.

Timing of Interval Print

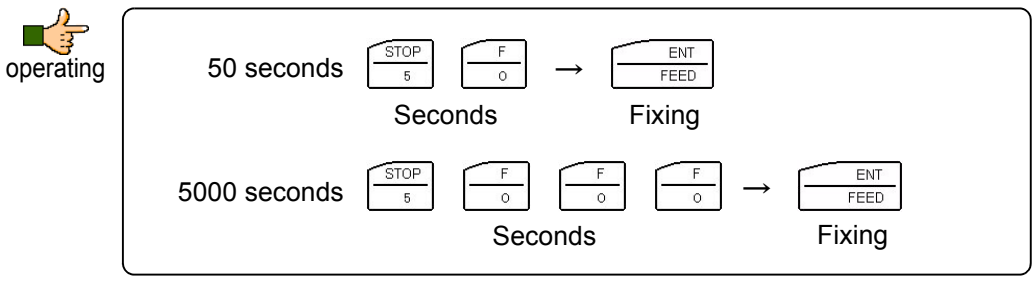


10: Interval Seconds

Set the interval for Interval Print in seconds.

Name of setting	10: Interval Seconds
Setting range	1 - 9999 seconds
Initial value	0003 seconds
Caution	The setting range of [Interval Seconds] varies depending on the [07: Print Every Format] setting (page 27). Set [Print Every Format] before setting [Interval Seconds]. When the [Print Every Format] setting is 00 or 01: 1 ～ 9999 seconds. When the [Print Every Format] setting is 02 ～ 07: 2 ～ 9999 seconds. When the [Print Every Format] setting is 08 ～ 11: 4 ～ 9999 seconds.

Example of setting -Setting 50 seconds/5000 seconds-



11: GT/ST Print Format

Select the print format of grand totals and sub totals.
Five types of formats can be selected.

Name of setting	11: GT/ST Print Format
Selection item	0. Standard (initial value) 1. With code 2. With ave/max/min 3. With statistical 4. With histogram
Reference	If Double print is selected under [Print Every Format] and Ach and Bch are the same in unit, the grand total all of both ch's is printed after printingthe total of each ch.

Examples of print

0. Standard

```
------------------------
GT                  1250kg
COUNT                 10
DATE     2000/07/05 01:25

--- GRAND TOTAL  Ach ---
```

Direction of print

1. With code name

```
------------------------
GT                  1250kg
COUNT                 10
CODE                ABCDE
DATE     2000/07/05 01:25

--- GRAND TOTAL  Ach ---
```

2. With avg./max/min

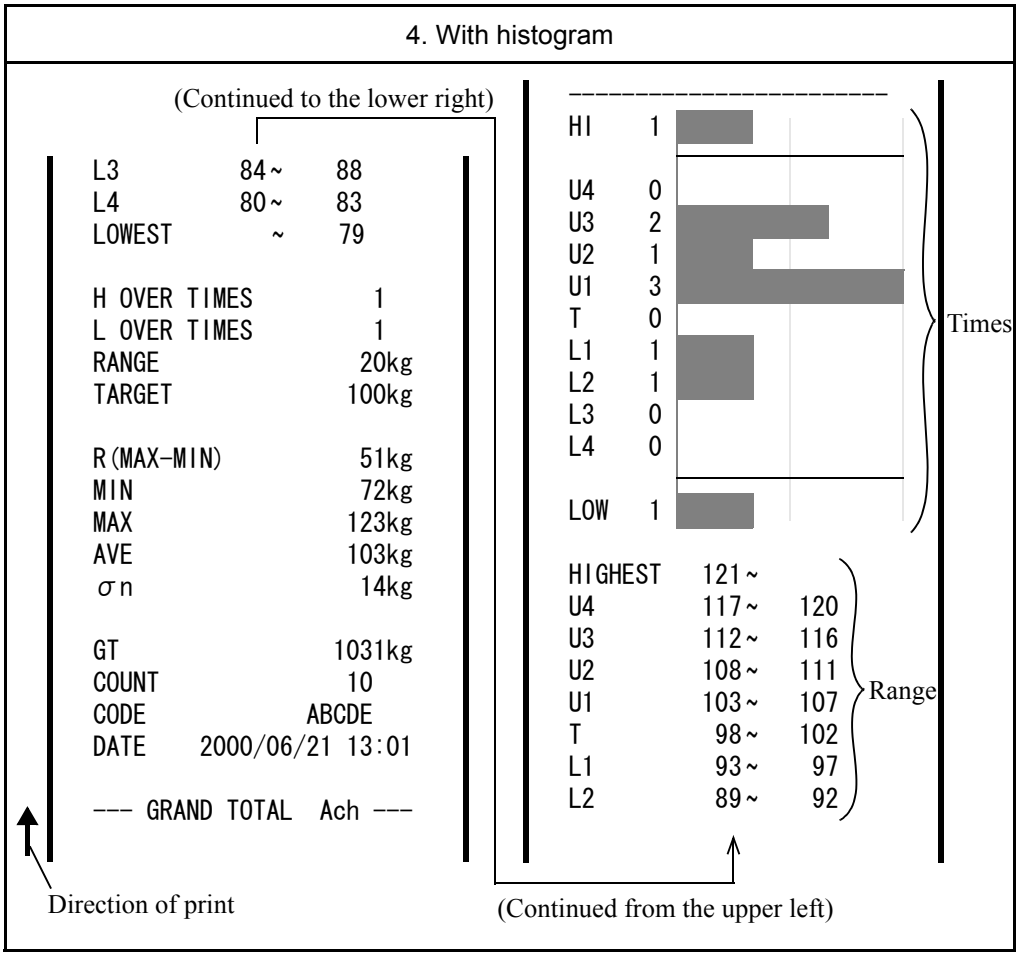
```
------------------------
R(MAX-MIN)          1903kg
MIN                  554kg
MAX                 2457kg
AVE                 1352kg
σn                   675kg

GT                 13515kg
COUNT                 10
CODE                ABCDE
DATE     2000/08/02 21:39

--- GRAND TOTAL  Ach ---
```

3. With statistical data

```
------------------------
H OVER TIMES           2
L OVER TIMES           1
RANGE                 20kg
TARGET               100kg

R(MAX-MIN)           122kg
MIN                    0kg
MAX                  122kg
AVE                   94kg
σn                    32kg

GT                  1036kg
COUNT                 11
CODE                ABCDE
DATE     2000/06/21 13:01

--- GRAND TOTAL  Ach ---
```

Examples of printing

4. With histogram



In the case of Double print

Ach and Bch are the same in unit, the grand total all of both ch's is printed after printingthe total of each ch.

Ach: Code Name WXYZA
Bch: Code Name ABCDE

If the decimal place setting of each ch is different, automatic totaling will result according to the ch with a larger number of decimal places.

```
GT                  2300kg
COUNT                 20
--- GRAND TOTAL  ALL ---

GT                  1250kg
COUNT                 10
CODE               ABCDE
DATE     2000/07/05 01:25

--- GRAND TOTAL  Bch ---

GT                  1050kg
COUNT                 10
CODE               WXYZA
DATE     2000/07/05 01:25

--- GRAND TOTAL  Ach ---
```

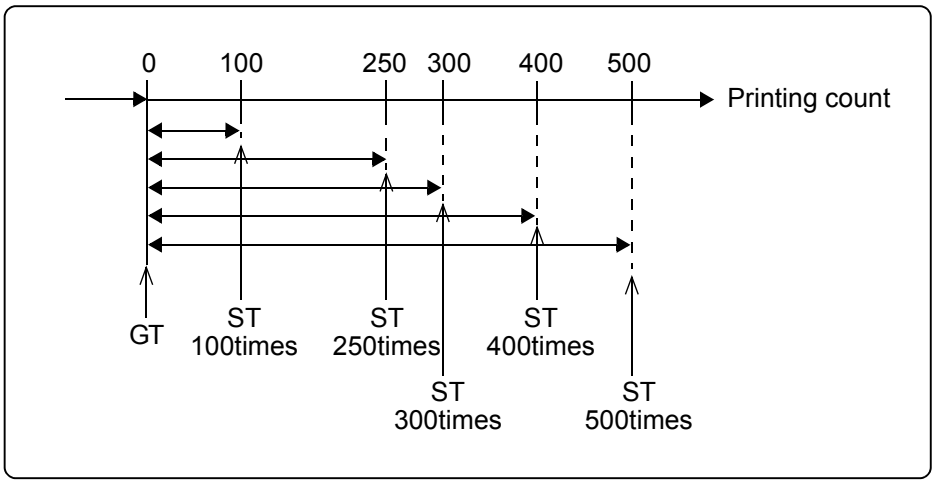
12: Types of Sub Totals

Select the types of sub totals.
There are two types of sub totals: Middle and Section.

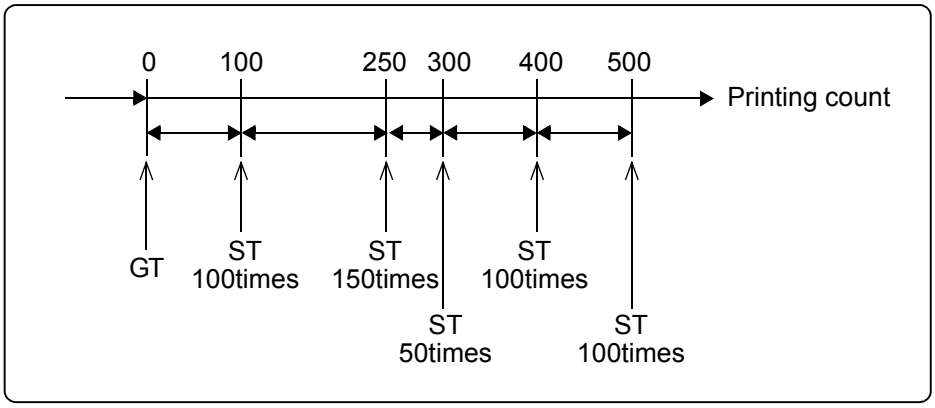
Name of setting	12: Types of Sub Totals
Selection item	0. Middle sub (initial value) 1. Section sub

Details of settings

Middle sub ..... A middle sub total from the last total to this sub total is printed.



Section sub total .... A section sub total from the last sub total to this sub total is printed.



13, 15: Histogram Target Value Ach/Bch

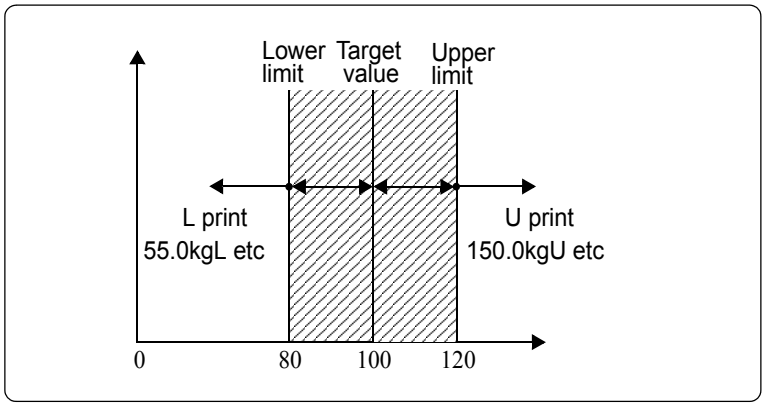
14, 16: Histogram Range Ach/Bch

* These setting items also serve as the "Range over (U/L)" setting (page 69).

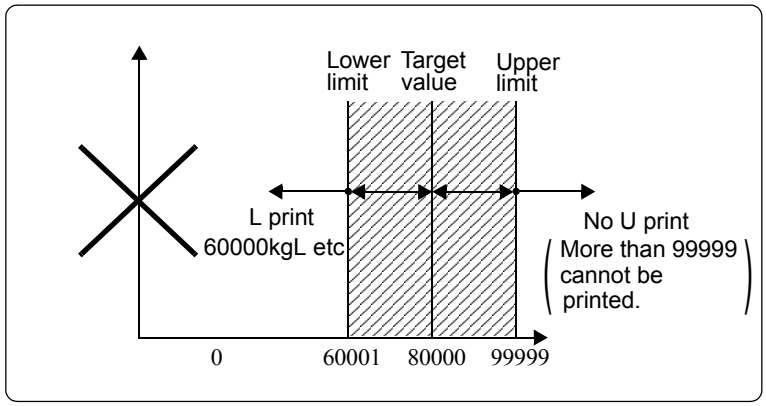
Set the target value and range (width from the target value) necessary to work out statistical data and the histogram.

Name of setting	13,15: Histogram Target Value Ach/Bch 14,16: Histogram Range Ach/Bch
Input range	Histogram target value 0 ～± 99999 (initial value: +00000) Histogram range 5 ～ 99998 (initial value: 99998)
Setting conditions	(Upper limit) = (Target value) + (Range) ≦ +99998 (Lower limit) = (Target value) - (Range) ≧ -99998
Explanation of setting	・If data exceeding the range is input, U (upper limit exceeded) or L (lower limit exceeded) is added to the print data. ・For switching the sign during input, use the [- (hyphen)] key. ・Input a setting value excluding a decimal point. Example） 100.0 → 1000 ・The range between the upper limit and lower limit are divided into nine equal parts to produce histogram ranks. ・The numbers of pieces of data exceeding the upper limit and lower limit are counted as H OVER TIMES and L OVER TIMES, respectively. ・If any data exceeds the upper limit or lower limit at Print-Every time, a range-over symbol is printed on the right-hand side of the data. Data ＞ Upper limit ⇒ ’U’ Data ＜ Lower limit ⇒ ’L’
Caution	・Since addition of U and L covers all print data during printing, if the histogram and diagram are not used, use maximum value (initial value) and the target value of zero (0) (initial vlaue) as the range. ・The target value can be set only in a condition that U and L can be printed. Before setting the target value, change the range value. ・If any target value is input not meeting the conditions, “Error” will be printed, and then an automatic movement will be made to the range setting of the corresponding ch. Change the range setting value, and then set the target value again.

Example of setting -Setting the target value at 100 and the range at 20-



Example of noprinting
-Setting the target value at 80000 and the range at 19999-



17: Standard Deviation

* This setting item is necessary when the GT/ST Print Format setting is 2 - 4.

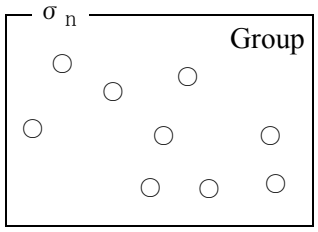
Select a standard deviation calculating expressions.
There are two types of calculating expression.

Name of settings	17: Standard Deviation
Selection	0. σ_n (initial value) 1. σ_{n-1}

Details of settings

σ_n ..... When all data in a group is used, and the standard deviation of the group is obtained.

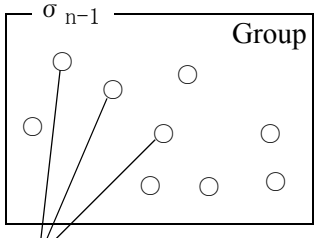
$$\sigma_n = \sqrt{\frac{\sum_{i=1}^{n} (\chi_i - \bar{\chi})^2}{n}}$$



All data in the group is used, and the standard deviation is obtained.

σ_{n-1} ..... Several pieces of sample data in a group are used, and the standard deviation of the group is estimated from the sample data.

$$\sigma_{n-1} = \sqrt{\frac{\sum_{i=1}^{n} (\chi_i - \bar{\chi})^2}{n-1}}$$



Only several points of sample data are used, and the overall standard deviation is estimated.

Caution in selection

σ_{n-1} calculates the standard deviation only with the sample data extracted from all print data. Therefore, if it is used when the quantity of data is small, the reliability of the value becomes low.

18: Data Adding ON/OFF

Select whether or not the print data is targeted for grand totals/sub totals.

Name of setting	18: Data Adding ON/OFF
Selection item	0. OFF 1. ON (initial value)
Caution	If Data Adding OFF is selected, printing is produced irrespective of the setting of [06: Print Every ON/OFF].

Details of settings

ON..... The print data is targeted for grand totals/sub totals.

OFF..... The print data is not targeted for grand totals/sub totals.
" * " (asterisk) is printed at the end of the printed data.

Meaning of setting

This setting is for testing printing after changing the setting(s) of equipment. Normally use at ON.

Example of setting

Actually, setting operations (print) for a change should be performed.

```
GT                    300.57kg
COUNT                        3
DATE        2000/07/01 10:00
---- GRAND TOTAL  Ach ----
3                     100.15kg
        (Omitted)      <------ Changed to ON in this interim.
2                     100.56kg*
2                     100.47kg*
        (Omitted)      <------ Changed to OFF in this interim.
2                     100.21kg
1                     100.21kg
```

19: PRINT Key ON/OFF

Select whether the ESC PRINT [PRINT] key on the front panel is ON or OFF.

Name of setting	19: PRINT Key ON/OFF
Selection item	0. OFF 1. ON (initial value)
Caution	This setting is irrelevant to the PRINT terminal on the rear panel and an automatic print command from the SI/F or RS-232C interface.

Meaning of setting

Select [OFF] if you do not want to print through a careless operation of the automatic equipment, etc.

20: Batch Total ON/OFF

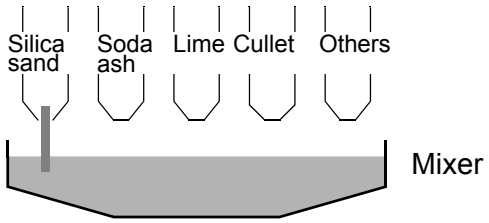
Set whether or not to find the batch total. If Batch Total is selected, the [FEED] terminal block on the rear panel is switched to the [Batch Total Print] terminal block.

Name of setting	20: Batch Total ON/OFF
Selection item	0. OFF (initial value) 1. ON
Caution	・Batch Total can only be executed by short-circuiting [FEED] and [COM] on the rear terminal block. ・If Double print is set, Batch Total cannot be turned ON.

Meaning of setting

Several small measurements are batched and printed as one measurement.

Raw glass materials



Generally, raw materials of glass are mixer-agitated materials including silica sand, soda ash, lime, cullet and others. Batch Total prints how much raw glass materials are mixed as a result of measuring each of these five types of materials.

Examples of printing

(Continued to the lower right)

```
----------------------------
BT                  422.84kg
COUNT                      2
DATE      2000/07/01 11:32

------ BATCH  TOTAL -----
    10              100.11kg
     9               10.06kg
     8                2.11kg
     7               10.06kg
     6              300.50kg
----------------------------
BT                  558.62kg
COUNT                      1
DATE      2000/07/01 11:32

------ BATCH  TOTAL -----

     5              225.82kg
     4               20.55kg
     3                2.01kg
```

Direction of print

```
     2               10.08kg
     1              300.16kg
----------------------------
GT                  937.02kg
COUNT                      3
DATE      2000/07/01 11:32

--- GRAND TOTAL  Ach ---

----------------------------
BT                  333.14kg
COUNT                      5
DATE      2000/07/01 11:32

----- BATCH  TOTAL -----

     5                3.99kg
     4               10.05kg
     3                8.99kg
     2               10.05kg
     1              300.06kg
```

(Continued from the upper left)

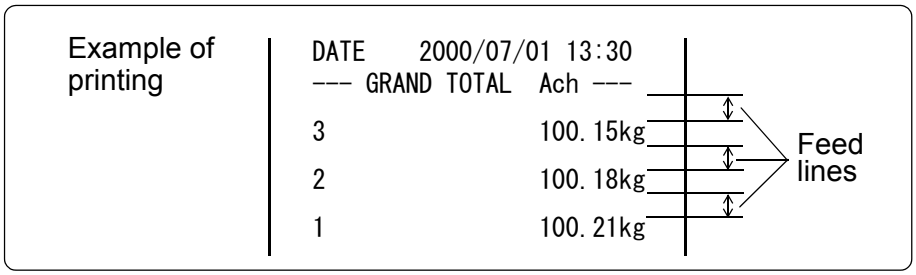
21: Feed Lines

Set the number of lines for feeding paper after Print Every, ST (sub total print) and GT (grand total print).

Name of setting	21: Feed Lines
Setting range	0 - 9 (lines)
Initial value	0
Caution	Paper is fed by the number of lines set under [Feed Lines] after Print Every, ST, GT, BT, Sample Print and Test Print. Paper is always fed by one line with the ENT FEED [FEED] key.

Meaning of setting

Immediately after every printing, the printed data cannot be checked because the paper has not yet been ejected from the ejection slot. Set 3 - 4 lines for visually checking every piece of printed data.



22: Code Selection Method

Select a method for selecting codes.

Name of setting	22: Code Selection Method
Selection item	See table below
Caution	If Keyboard/Option is selected, code names can be selected. If Key Table/Option Table is selected, codes can be selected from code tables.

Setting	Ach	Bch
0 (initial value)	Key Board	Key Board
1	Option	Key Board
2	Key Table	Key Table
3	Option Table	Key Table

Details of setting

Keyboard ..... Code names can be selected with the keys on the front panel.

Option ..... Code names can be selected through RS-232C interface or BCD input (option).

Key table ..... Codes can be selected with the keys on the front panel.

Option table ..... Codes can be selected through the RS-232C interface or BCD input (option).

23: Number of Code Digits Designation

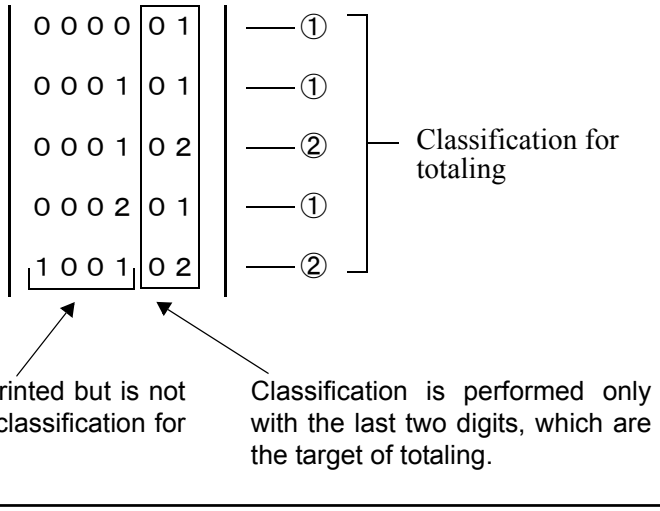
Set the number of code digits for classification.

Name of setting	23: Number of Code Digits Designation
Setting range	0 - 6 (digits)
Initial value	6
Caution	When using code tables, set the Number of Code Digits to two digits. If it is set to three or more digits, normal classification cannot be performed.

Details of setting

Usually up to six digits can be used for code names, but if the Number of Code Digits is set, code names are classified by the set number of digits from their ends, so that code names having a different beginning can also be classified as the same for totaling.

Example) The Number of Code Digits is set at two digits.


0 0 0 0 0 1
0 0 0 1 0 1
0 0 0 1 0 2
0 0 0 2 0 1
1 0 0 1 0 2
①
①
②
①
②
Classification for totaling
This part is printed but is not the target of classification for totaling.
Classification is performed only with the last two digits, which are the target of totaling.

24, 25: Code Table Registration Ach/Bch

Register a code table. What should be registered are codes and corresponding code names for the code table.

Name of setting	24: Code Table Registration Ach 25: Code Table Registration Bch
Maximum number of codes	64 (32 for each ch)
Caution	・The code table can only be registered with the keys on the front panel. ・For details of the code table, see "Classification by code name and code table"(page 56).

M E M O

5 Optional interface

BCD input and RS-232C interface

■ BCD input (option) 44
■ BCD input settings 48
■ RS-232C interface(option) 49
■ RS-232C settings 50
■ Communications format 52
■ DC power source 54

BCD input (option)

The BCD input is an interface to take in BCD data, and code numbers to the M252A.

Applicable connector	DDK-manufactured 57-30500 or equivalent
Input data	Print data, codes (number, space, hyphen)
Input equipment	Digital switch, DIP switch, BCD output equipment, etc.
Input logic	Select negative logic or positive logic.

BCD input pin assignment

No			No		
1	COM		26	Code	10
2	Print data	1	27	Code	20
3	Print data	2	28	Code	40
4	Print data	4	29	Code	80
5	Print data	8	30	Code	100
6	Print data	10	31	Code	200
7	Print data	20	32	Code	400
8	Print data	40	33	Code	800
9	Print data	80	34	Code	1000
10	Print data	100	35	Code	2000
11	Print data	200	36	Code	4000
12	Print data	400	37	Code	8000
13	Print data	800	38	Code	10000
14	Print data	1000	39	Code	20000
15	Print data	2000	40	Code	40000
16	Print data	4000	41	Code	80000
17	Print data	8000	42	Code	100000
18	Print data	10000	43	Code	200000
19	Print data	20000	44	Code	400000
20	Print data	40000	45	Code	800000
21	Print data	80000	46	Over input (See page 68)	
22	Code	1	47	Minus input	
23	Code	2	48	Reserved	
24	Code	4	49	Strobe input	
25	Code	8	50	Reserved	

Codes for BCD data input

Binary number		Hexadecimal number	Print
MSB	LSB		Character
0000		0	0
〜		〜	〜
1001		9	9
1010		A	Space
1011		B	Space
1100		C	Space
1101		D	- (Hyphen)
1110		E	Space
1111		F	Space

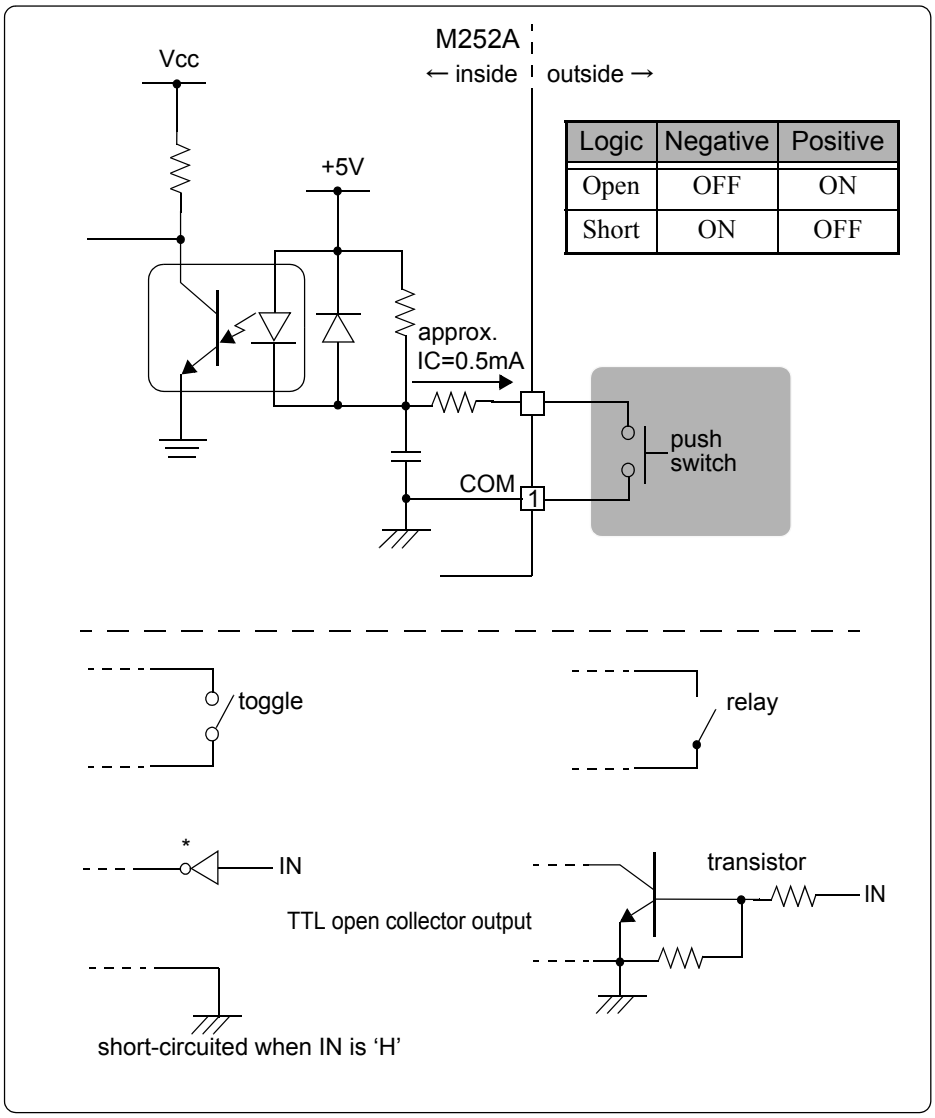
Note

- When you input a code from BCD input, please choose 1or 3 of setting item "code selection ".

- When you make a code print by print every format, please choose thing with a code. By the default, only the count and data are displayed.

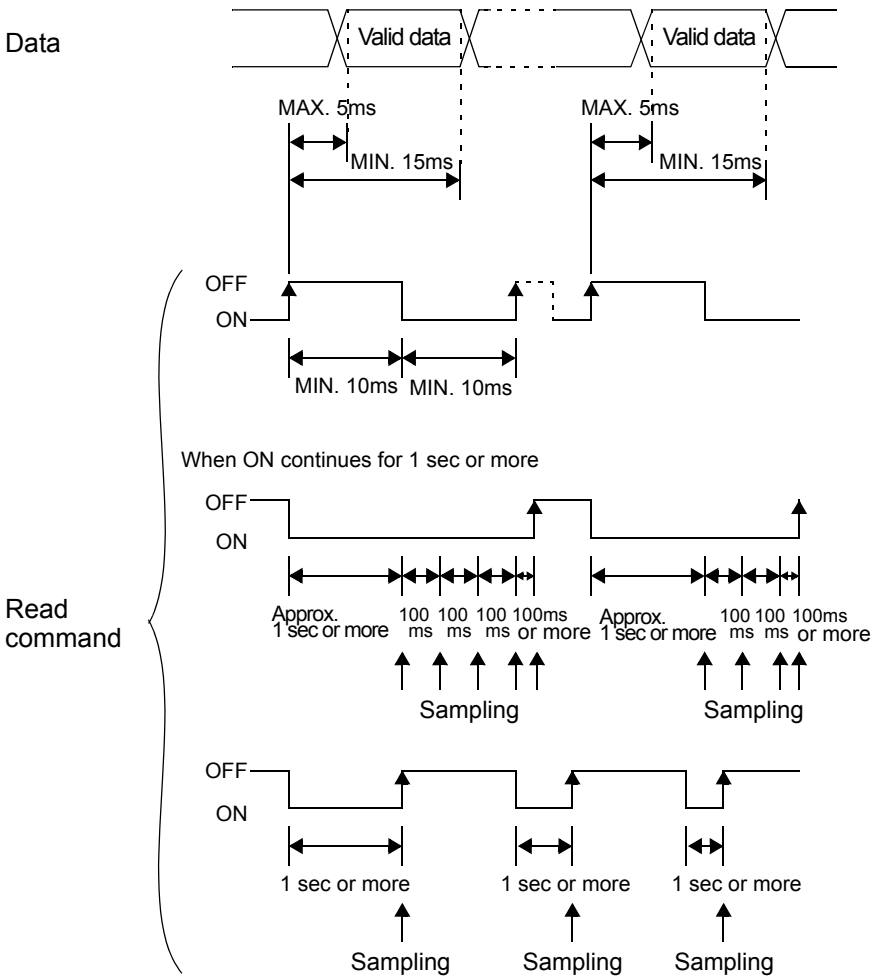
Input equivalent circuit

A signal is inputted to the signal input circuit by short-circuiting or opening the input terminal and the COM terminal. Short-circuiting is effected by means of a contact (such as a relay or a switch) or a noncontact (such as a transistor or an open-collector TTL).



Logic	Negative	Positive
Open	OFF	ON
Short	ON	OFF

Read command



* When the read command is short-circuited for 1 sec or more, data is taken in asynchronously at intervals of 100ms.

BCD input settings

41: BCD Decimal Point Position

Select a decimal point position to input data through the BCD input.
Five types of decimal point positions can be selected.

Name of setting	41: BCD Decimal Point Position
Selection item	0. *.**** 1. **.*** 2. ***.** 3. ****.* 4. ***** (initial value)

42: BCD Data Logic

43: BCD Minus Logic

44: BCD Over Logic

45: BCD Strobe Logic

Select a BCD input logic.

Name of setting	42: BCD Data Logic 43: BCD Minus Logic 44: BCD Over Logic 45: BCD Strobe Logic
Selection item	0. Negative logic 1. Positive logic
Initial value	0. Negative logic (all)
Reference	Logic settings can be made separately for Data/Code, Minus, Over, and Strobe.

How to enter the option mode

Press the [F] → [ENT] [ENT] - [2] → [ENT] keys in order. For details, see "Basics of settings"(page 20).

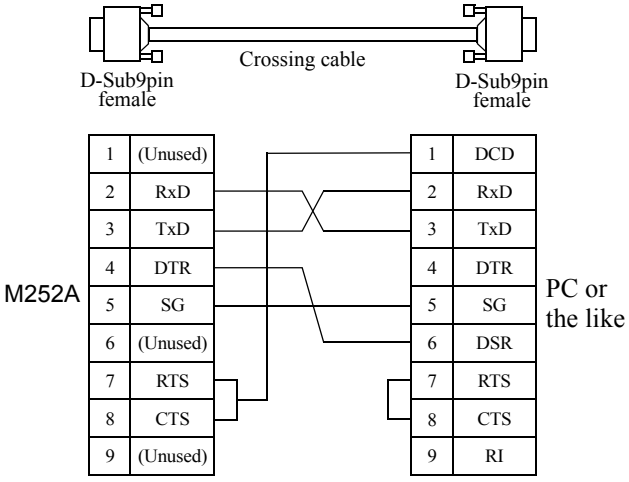
RS-232C interface(option)

The RS-232C is an interface to take in RS-232C spec data, codes and command signals to the M252A.

Signal level	RS-232C spec
Transmission distance	Approx. 15m
Transfer system	Start/stop synchronous system, full duplex communications
Transfer speed	1200, 2400, 4800 or 9600 bps selection
Bit configuration	Start bit: 1 Character length: 7 or 8 bit selection Stop bit: 1 or 2 bit selection Parity bit: Non, odd or even selection
Code	ASCII
Connector	D-Sub 9pin male (CN33)
Necessary settings	46: RS-232C transmission rate 47: RS-232C parity bit 48: RS-232C data/stop bit 49: RS-232C terminator 50: RS-232C answer mode

RS-232C pin assignment

No.	I/O	Description
1	-	(Unused)
2	IN	RxD
3	OUT	TxD
4	OUT	DTR
5	*	SG
6	-	(Unused)
7	OUT	RTS
8	OUT	CTS
9	-	(Unused)



* This connection diagram shows cables in the case where the PC in use is DTE (data terminal equipment). If the M252A is connected to DCE (data circuit terminator equipment) such as a modem, use straight type cables.
* Also, recheck the connector shape and signal lines (pin assignment) of the equipment you use before preparing cables.

RS-232C settings

46: RS-232C Transmission Rate

Select transmission rate

Name of setting	46: RS-232C Transmission Rate
Selection item	0. 1200bps 1. 2400bps 2. 4800bps 3. 9600bps (initial value)
Caution	The setting must be the same as the connecting equipment.

47: RS-232C Parity Bit

Select parity bit.

Name of setting	47: RS-232C Parity Bit
Selection item	0. Even 1. Odd (initial value) 2. Non
Caution	The setting must be the same as the connecting equipment.

48: RS-232C Data/Stop Bit

Select data/stop bit.

Name of setting	48: RS-232C Data/Stop Bit
Selection item	0. 7bit 1stop (initial value) 1. 7bit 2stop 2. 8bit 1stop 3. 8bit 2stop
Caution	The setting must be the same as the connecting equipment.

When printing a *katakana* code, set the RS-232C character length of the M252A and the PC to 8 bits. If set to 7 bits, transmission of *katakana* data is disabled.

49: RS-232C Terminator

Select terminator.

Name of setting	49: RS-232C Terminator
Selection item	0. CR 1. CR+LF (initial value)
Caution	The setting must be the same as the connecting equipment.

50: RS-232C Answer Mode

When receiving data or a command through the RS-232C interface, the M252A returns with the received data or command to the host computer. Select this return format.

Name of setting	50: RS-232C Answer Mode
Selection item	0. MODE 0 (M250 mode) (initial value) 1. MODE 1 (M252 mode)
Reference	Select the M250 mode when using software specifically prepared for UNIPULSE-manufactured intelligent printer M250 in the M252A. Normally, it is recommended to use the M252 mode.
Caution	When preparing software such that two or more commands are sent successively, be sure to program the software so that the next command is sent after receiving a response .

Details of settings

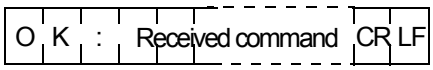
MODE 0 (M250 mode)

..... Echo-back is performed with respect to all received commands. Echo-back is also performed even when the command is invalid (for example, when a code name is received even though it is set so that code names are to be input with front panel keys)

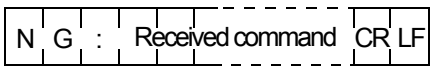
MODE 1 (M252 mode)

..... Information regarding whether or not a command has been executed is returned as it is added to the header with respect to all received commands.

The received command has been executed.

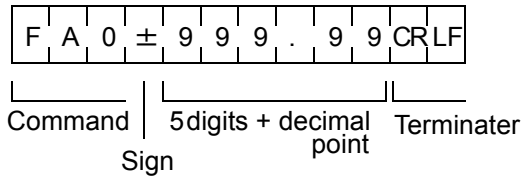


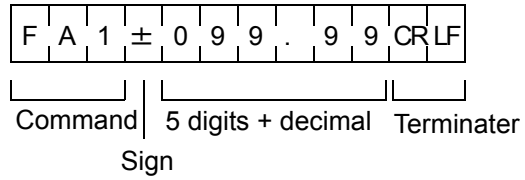
The received command is invalid.



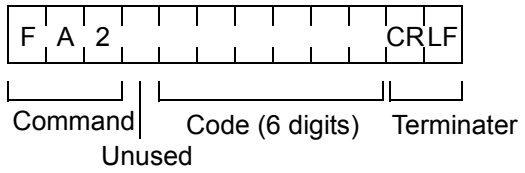
Communications format

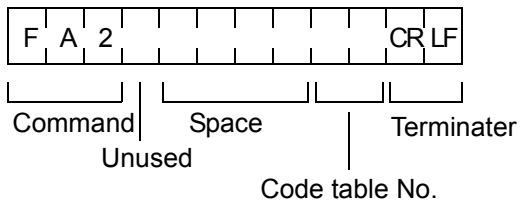
The M252A receives all data through the RS-232C as character strings consisting of ASCII characters. For data and command formats, see below.

<table>
<tr><td>Data
(without automatic print)</td><td> 

* If no decimal point is included, 0 is added to the uppermost digit.</td></tr>
<tr><td>Data
(automatic print)</td><td> 

* If no decimal point is included, 0 is added to the uppermost digit.

Note
If the setting of "Automatic Print ON/OFF" of M252A is OFF, no printing will be performed.
See "08 : Automatic Print ON/OFF" (page 30) for details.</td></tr>
<tr><td>Code Name</td><td> 

Code name { Number : 0 - 9
English letter : A - Z
Katakana : ア - ン
Symbol : hyphen, slash, Space</td></tr>
<tr><td>Code table</td><td> 

Code table No.: 00 - 31</td></tr>
</table>

Delete last data	F B 0 CR LF
GT print	F B 1 CR LF
ST print	F B 2 CR LF
Data print (latest data print)	F B 3 CR LF
Paper feed	F B 9 CR LF
Batch total print	F B 4 CR LF
Date/Time print	F B 6 CR LF

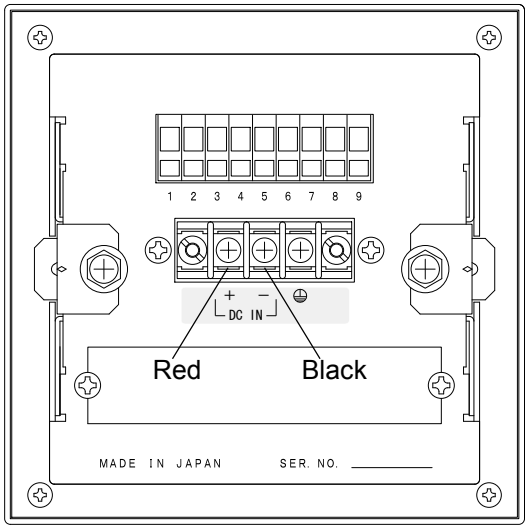
Note

- When you input a code with RS-232C interface, please choose 1or 3 of setting item "code selection ".

- When you make a code print by print every format, please choose thing with a code. By the default, only the count and data are printed.

DC power source

For the M252A, DC power source specification can be selected at order-time.



Connect the positive (+) side of the power source to the red screw side of the terminal block on the back of the M252A, and its negative (-) side to the black screw side.

Input voltage range

DC12V ～ 24V $^{+15\%}_{-15\%}$ (voltage between terminals of the M252A)

Note

Be aware that the voltage drops depending on the wire thickness and length.Also, never input an AC power source. Doing so will cause a failure.

Current consumption (25 ℃ ,With BCI option)

Condition	DC12V	DC24V
Wait	Approx.150mA rms	Approx.100mA rms
Print Every	Approx.800mA rms	Approx.400mA rms
Current consumption (max.)	10A peak (Approx.2msec)	2A peak (Approx.2msec)

※ When the histogram format is printed, current consumption is maximum.

Inrush current (25 ℃ ,With BCI option)

DC12V	DC24V
800mA peak (150msec)	1A peak (150msec)

6 Advanced use

Various functions of the M252A

- Classification by code name and code table 56
- Maintenance mode 63
- Over print 68
- Delete print 70
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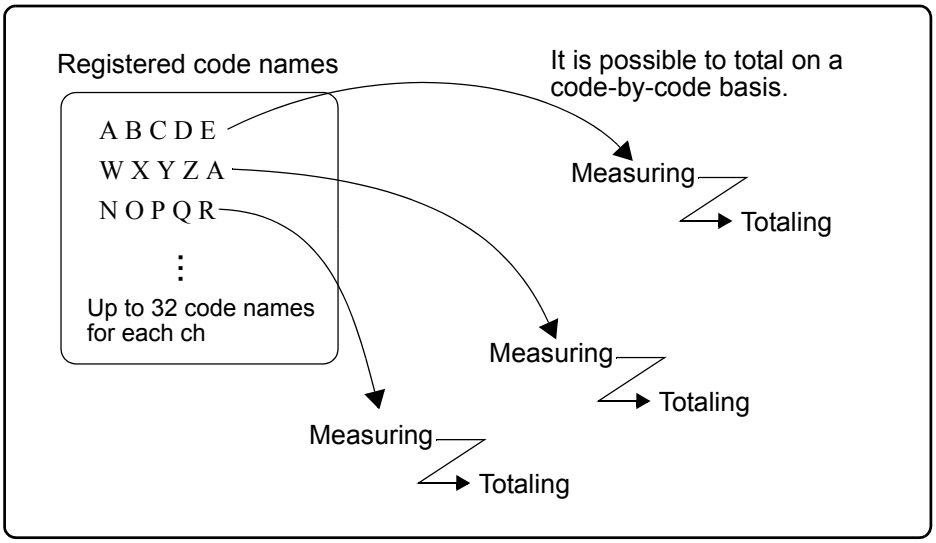
Classification by code name and code table

The M252A can total sub totals and grand totals on the basis of code names assigned to print data. Up to 32 code names can be registered for each ch.

Maximum number of code names	32 code names for each ch
Method of registration	・A registration waiting state is developed by inputting with front panel keys and pressing [A] → [ENT] ([B] → [ENT] on Bch). ・Input through the RS-232C. (page 51)
Input format	###### (6 digits at the maximum)
Usable characters	umbers, English letters, *katakana*, synbols (-, *, /, space)
Code name designation method	Front panel keys, RS-232C, BCD input



Code name registration performance with front panel keys

Input code names by using numeral keys from [A 1] [1] to [F 0] [0], and [− ST] [-(ST)], [SP GT] [SP(GT)], [DEL] [(DEL)] keys. Since each numerical key is assigned approx. 10 characters, press the key until a desired character is displayed results. (This is designateed a key group.) For the list of characters assigned to each group, see the appendix "Character input table"(page 83).

- For inputting a character in the same group successively, press [DEL] [DEL] once to move the virtual cursor one character ahead.

- For inputting a character in a different group, input it successively. It is not necessary to press [DEL] [DEL].

The basic operating procedures for actually setting the M252A actually are described below. Here, the code name "ABCDE" is registered to Ach as an example.

1. Press [A 1] [A] → [ENT FEED] [ENT], and the following is printed to start code name input.

```
>> Input Code A - ENT
>> Now Code A   [ABC   ]
```

2. Input the code name as follows.

operating

A	Press [A 1] two times.	(Actually, it is not indicated.) A □ □ □ □ □ Virtual cursor position
B	Press [A 1] three times.	A B □ □ □ □
C	Press [B 2] two times.	A B C □ □ □
D	Press [B 2] three times.	A B C D □ □
E	Press [B 2] four times.	A B C D E □

Upon completion of input, fix with [ENT FEED]

3. The registered code name is printed.

```
>> Code name is [ABCDE  ]
```

Code table - Difference from code names -

By registering code names corresponding to 2-digit numbers (code table numbers) between 00 and 31 beforehand (The same also applies to Bch.), a registered code name can be designated and printed by specifying its table number without inputting its code name every time you select a code name. If the code table is not used, it is necessary to designate the code name by inputting it with front panel keys or through an option.

Code table

Code table number	Corresponding code name
00	S T U V
01	F G H I
02	N O P Q R
⋮	⋮
31	J K L M

By specifying a code table number, the corresponding code name is designateed, printed and classified. For designateing NOPQR, input "02" to the last two digits.

Code names

Registered code name
S T U V
F G H I
N O P Q R
⋮
J K L M

By specifying a code name, the code name is designateed, printed and classified. For designateing NOPQR, input "NOPQR".

Maximum number of code names	32 code name for each ch. Ach (00 - 31) Bch (32 - 63)
Method of registration	Register under [24 (25): Code Table Ach (Bch)] in the setting mode.
Input format	Code ## (00 - 63 to the last two digits) Code name ###### (6 digits at maximum)
Usable characters	Numbers, English letters, *katakana*, symbols (-, *, /, space)
Code namedesignateing method	Front panel keys, RS-232C, BCD input

However,

Registration	Ach :00 ～ 31	Bch :32 ～ 63
Call	Ach :00 ～ 31	Bch :00 ～ 31

Code table registration performance

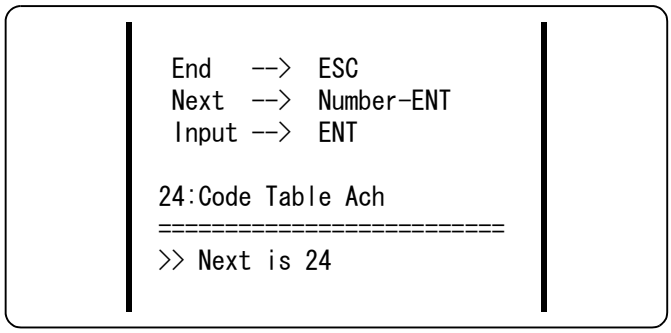
Code table registration is almost the same as the abovementioned [Code name registration performance] except for inputting table numbers corresponding to code names at the beginning.

The basic operating procedures actually for setting the M252A are described below. Here, the code table number "01" and code name "NOPQR" are registered on Ach as an example.

1. Select “2. Key Table” or “3. Option Table” under [22: Code Selection Method].

2. Set “2 digits” under [23: Number of Code Digits Designation].

3. Referring to "4. For greater use of the printer" (page 19), enter [24: Code Table Registration Ach] in the setting mode.



operating

To enter code table registration: [ENT]

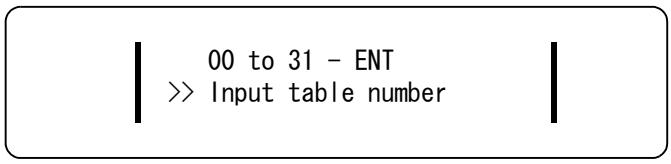
To make other settings: [Setting no.] → [ENT]

To cancel or end: [ESC]

For code table registration, press [ENT] [ENT].

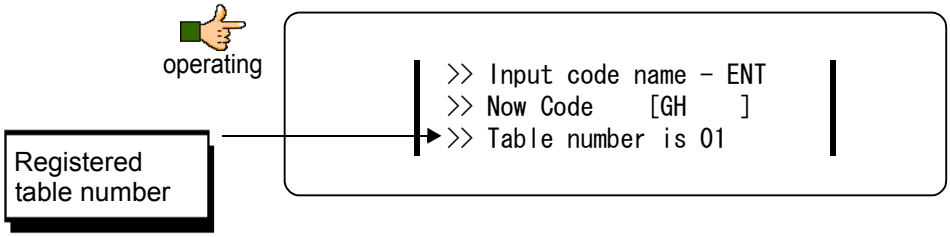
4. Since the following is printed, input the code table number in a 2-digit number.

operating



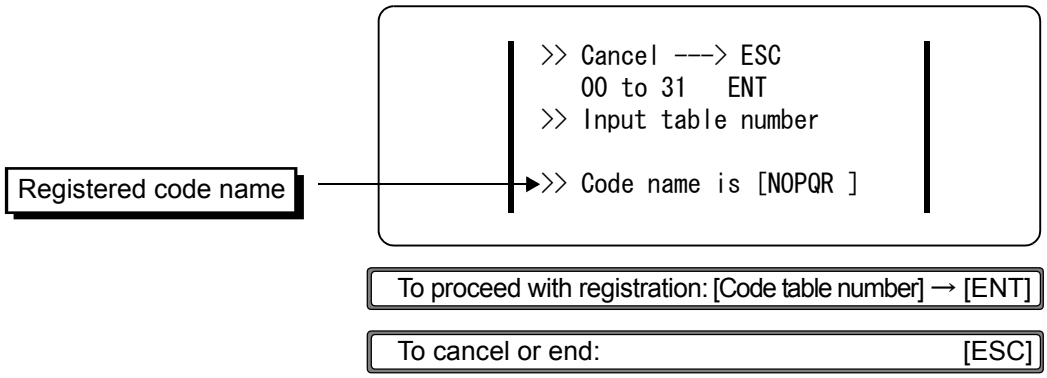
Here, press [F 0] [A 1] [01] → [ENT] [ENT].

5. Since the following is printed, input the code name successively.



Referring to [Code registration performance], input the code name.

6. The registered code name is printed, and code table registration is completed.


>> Cancel ---> ESC
00 to 31 ENT
>> Input table number
>> Code name is [NOPQR]
Registered code name
To proceed with registration: [Code table number] → [ENT]
To cancel or end: [ESC]

Method of code table registration

For the method of code table registration, also see "Code Table Registration Ach/Bch" (page 41).

How to designate a code name/code table

For designating a code name, input the code name, and for designating a code table, input the table number. There are some restrictions in interface for designating a code name/code table.
Select whether to designate a code name or code table and whether to use front panel keys or an optional interface under [22: Code Name Selection Method] in the setting mode.

Selecting with front panel keys

Press [A] → [ENT] [ENT] ([B] → [ENT] [ENT] on Bch) in the print mode, and a code name selection state is developed. In the case of a code name, input by the same operation as the abovementioned method of registration. In the case of a code table, it is requested to input the table number, so press [Del] four times, and then input a 2-digit number. (If the first digit and the second digit are the same, press [Del] once after inputting the first digit, and then input the second digit.)

Selecting through an option

See the explanations for each option.

List of methods of code name/code table selection

	Code		Code table	
	Ach	Bch	Ach	Bch
Front panel keys	○	○	○	○
BCD input	△ (Note)	×	○	×
RS-232C	○	×	○	×

(Note) Codes that can be selected through the BCD input are only numbers, spaces and hyphens.

List of code table registration methods

	Code table	
	Ach	Bch
Front panel keys	○	○
BCD input	×	×
RS-232C	×	×

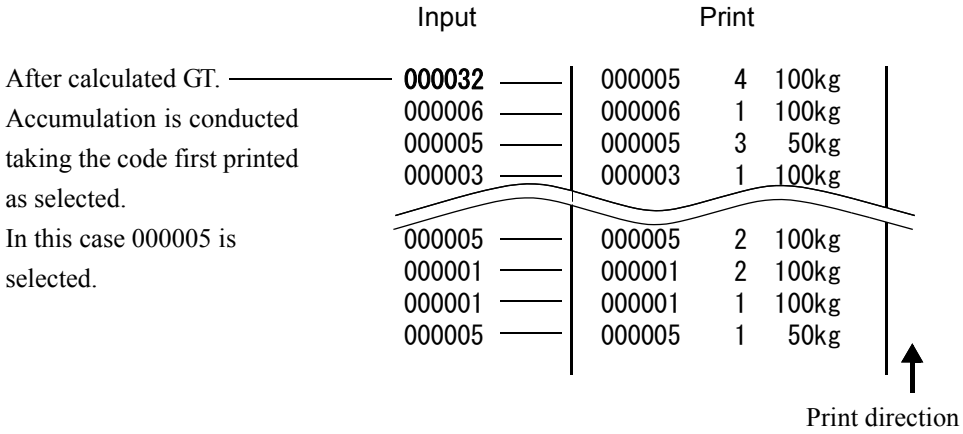
Code table numbers can be selected through an option only to Ach. Selection cannot be made to Bch.

Note

Be careful when over 32 types of codes or other than 00~31 codes is selected from front panel or option,accumulation is conducted taking items below as selected

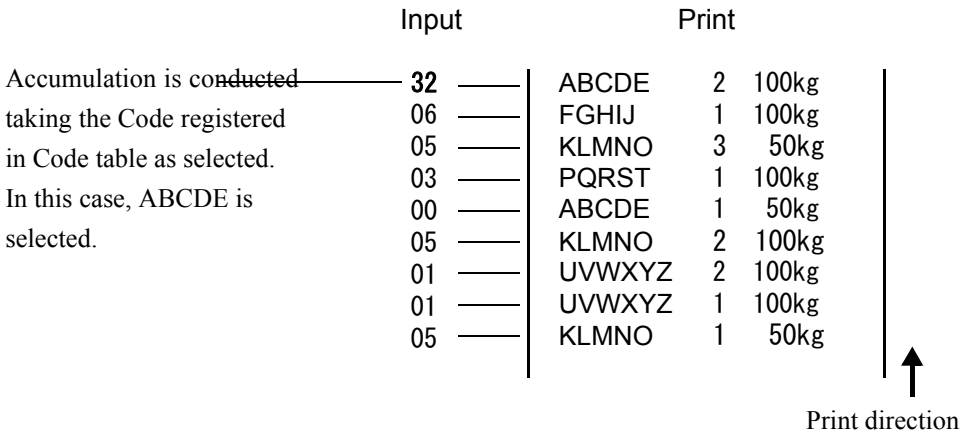
Code: Code printed first after calculated GT

Example) When 000032 is selected after 32 types of code 000000~000031 were printed.



Code Table: Code registered in Code table 00

Example) When 32 in Code Table is selected.



Maintenance mode

In the maintenance mode, operations of the M252A are checked.

1	Test Print	All characters that can be printed by the M252A are printed. The data input status is printed.
2	Sample Print	Print Every and GT/ST Print formats are printed.
3	Self Test	The ROM and RAM of the M252A are tested, and the results are printed.
4	Parameter List	A list of current parameters of the M252A is printed.
5	Test Mode	For factory check (Do not use).

Method for operating the maintenance mode

How to enter each item in the maintenance mode and procedures for each execution are described below. Here, test print is performed as an example.

1. Press [F] → [ENT], and the following is printed.
   To enter the maintenance mode, press [3] → [ENT] successively.

```
--------------------------
Cancel/End      -->  ESC
Maintenance     -->  3-ENT
Option Setting  -->  2-ENT
Setting         -->  1-ENT
==========================
          Select
==========================
```

operating

To enter the setting mode: [1] → [ENT]

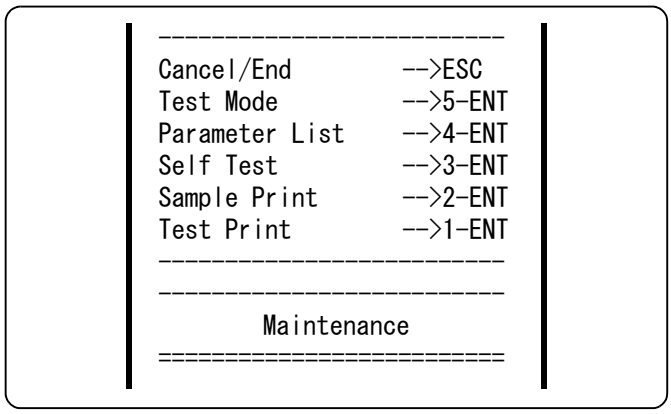
To enter the option setting mode: [2] → [ENT]

To enter the maintenance mode: [3] → [ENT]

To cancel or end: [ESC]

* For details of the setting and option setting modes, see the respective explanations.

2. Since a list of items in the maintenance mode is printed, select a target item.



operating

To perform a test printing: [1]→ [ENT]

To perform a sample printing: [2]→ [ENT]

To perform a self test: [3]→ [ENT]

To print a parameter list: [4]→ [ENT]

To enter the test mode:

To cancel or end the maintenance mode: [ESC]

Since the item No. of Test Print is [1], press [A/1] [1] → [ENT/FEED] [ENT]. As soon as [ENT/FEED] [ENT] is pressed, a test printing starts.

Cautions in maintenance mode

In the maintenance mode, each operation starts as soon as selection is made from the above menu ([item No.] → [ENT/FEED] [ENT]). A confirmation message as in the setting mode and in the option setting mode are not printed.

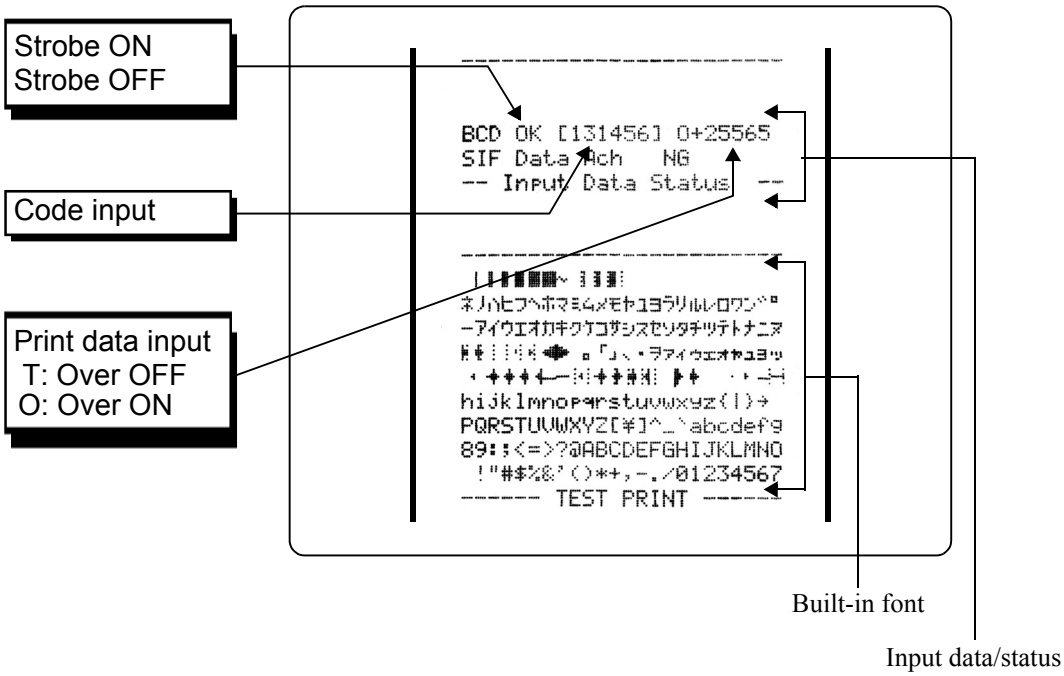
The test mode is an item for a factory check. Do not use this mode. (It is password-locked.)

1: Test Print

All characters that can be printed with the M252A, and the input data/status of each I/F are printed.

Test print is executed by pressing [A 1] [1] → [ENT FEED] [ENT] in the maintenance mode.

Sample of printing



The SIF Bch status is printed only for double printing.

For BCD, printing results only when a BCD option is attached.

The data input status from the BCD IN connector is shown.

It is judged that no valid data is input if the print data part of the BCD print data input is other than 0 to 9 as follows:

T + EA001

(Printing of print data input values is disabled.)

2: Sample Print

Print Every and GT/ST Print formats are printed.

Test print is executed by pressing [B 2] [2] → [ENT FEED] [ENT] in the maintenance mode.

Sample of printing (partial)

```
(↑ Print continues.)
**************************
** SAMPLE PRINT No.3  **
**************************

A---00 9876      12345kg
**************************
** SAMPLE PRINT No.2  **
**************************

05:09 9876       12345kg
**************************
** SAMPLE PRINT No.1  **
**************************

9876             12345kg
**************************
** SAMPLE PRINT No.0  **
**************************
```

■ As a sample, 180 lines are printed in total (approximately 65cm).

3: Self Test

The ROM and RAM of the M252A are tested, and the results are printed.

Press [DATE 3] [3] → [ENT FEED] [ENT] in the maintenance mode, and the buzzer sounds and the test starts.

Results of check

```
--------------------------
>> SUM:2AE
>> ROM: ○
>> RAM: ○
>> Checking...
------------------------
```

Results of test

{ Normal : ○
Abnormal: ×

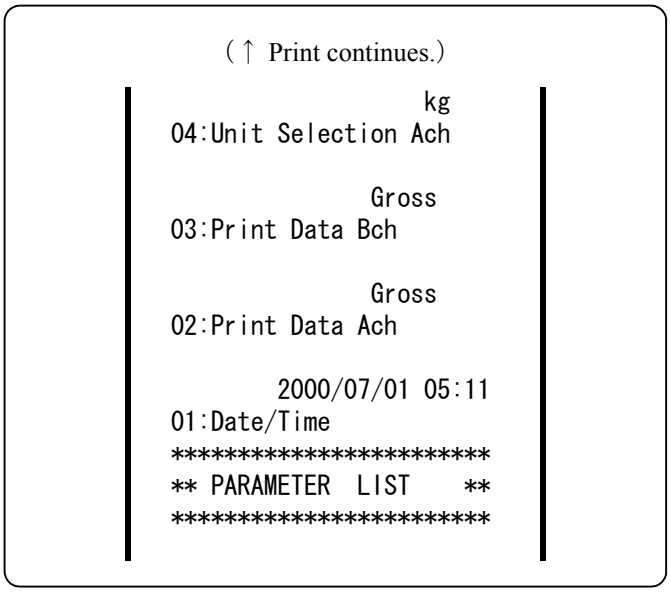
* The description of SUM varies depending on the ROM version.

If the result of Self Test is × or the test does not finish normally, the M252A may be faulty.
Ask your deaer representative or for sevicing.

4: Parameter List

A list of current parameters of the M252A is printed.
If a code table is used, code table setting values are also printed.

Sample of printing



■ As a parameter list, 100 lines are printed in total (approximately 35cm).
For double printing with use of a code table, 170 lines are printed (approximately 60cm).

5: Test Mode

The initial setting mode by the factory, and locked by password.

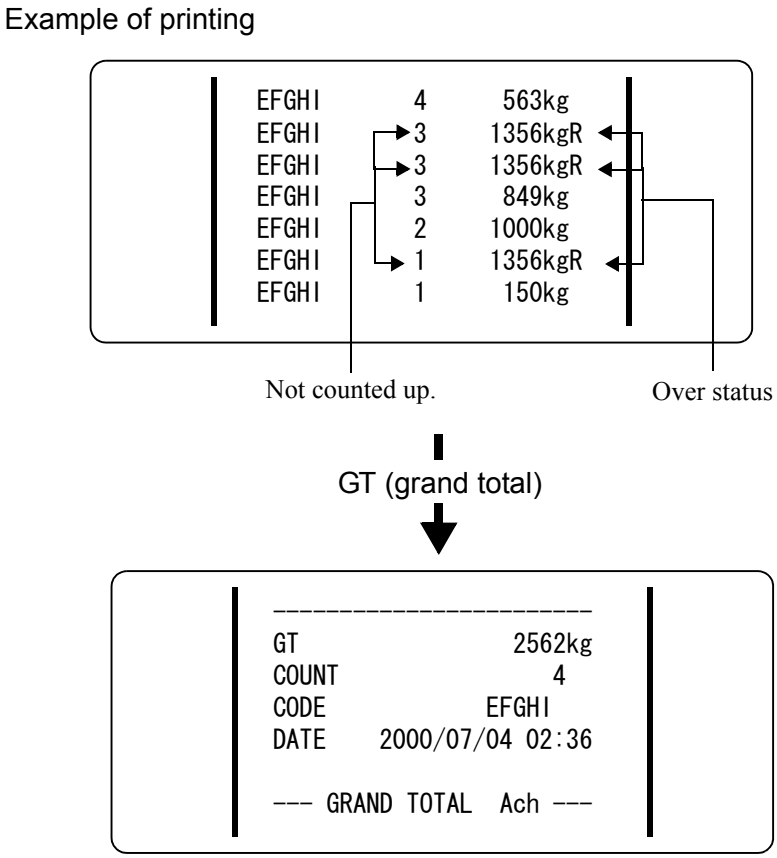
Over print

Print data out of the range set by the connecting indicator or the M252A is identified by this function. There are two types of over print: over status (R) and range over (U/L).

Over status (R)

If the indicator side causes a LOAD (A/D converter input over), OFL1 (net>99999) or zero abnormality, "R" is added after printed data, and the data is not added to grand totals/sub totals. It is not counted up either.

Example of printing



With the SI/F, over status is automatically sent from the indicator. With the BCD input, over print is performed when a signal is input to pin No.46 [over input].

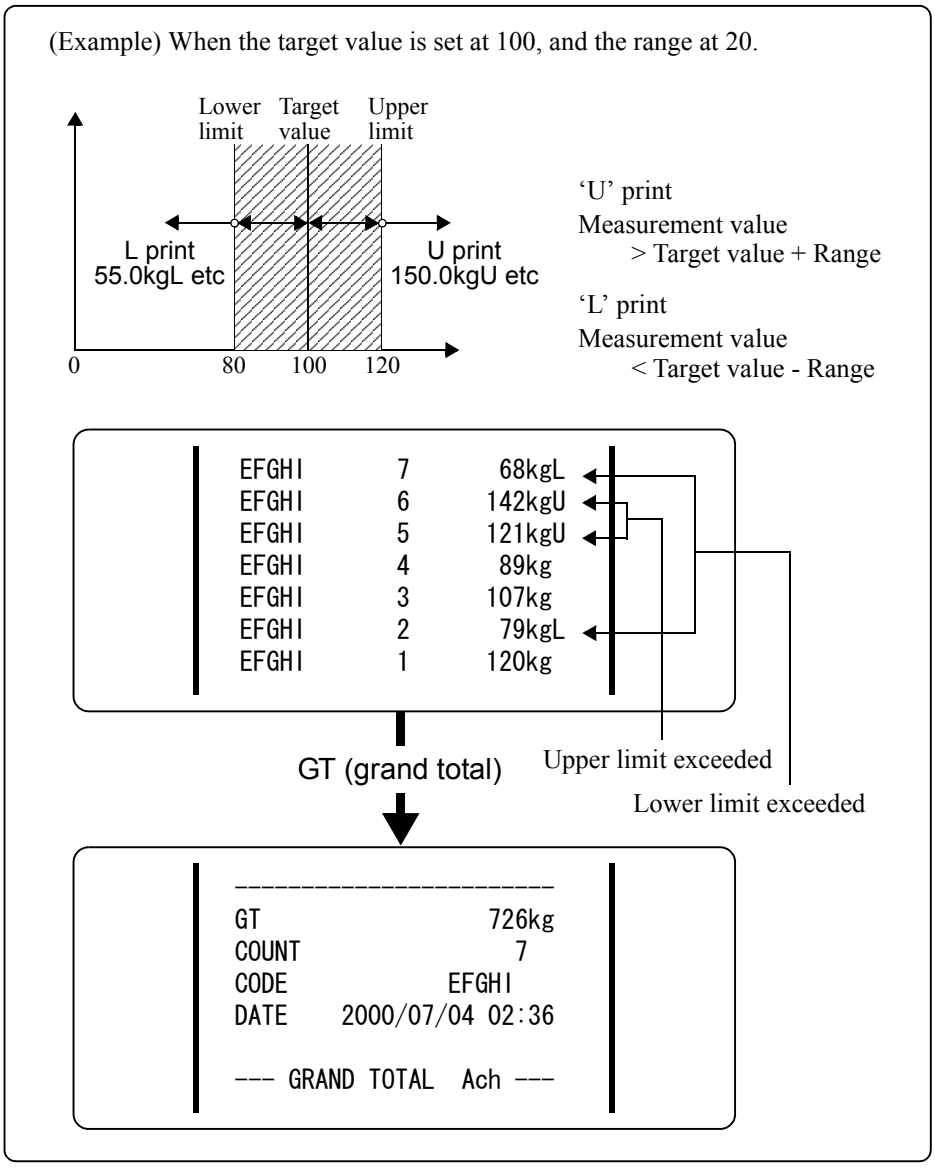
Note

Over status is printed because the indicator side has a problem. The problem cannot be solved by setting on the printer side.

Range over (U/L)

If the range set under Target Value Ach (Bch) and Range Ach (Bch) is exceeded, the print is added after printed data. If the upper limit is exceeded, "U" is printed, and if the lower limit is exceeded, "L" is printed.

(Example) When the target value is set at 100, and the range at 20.



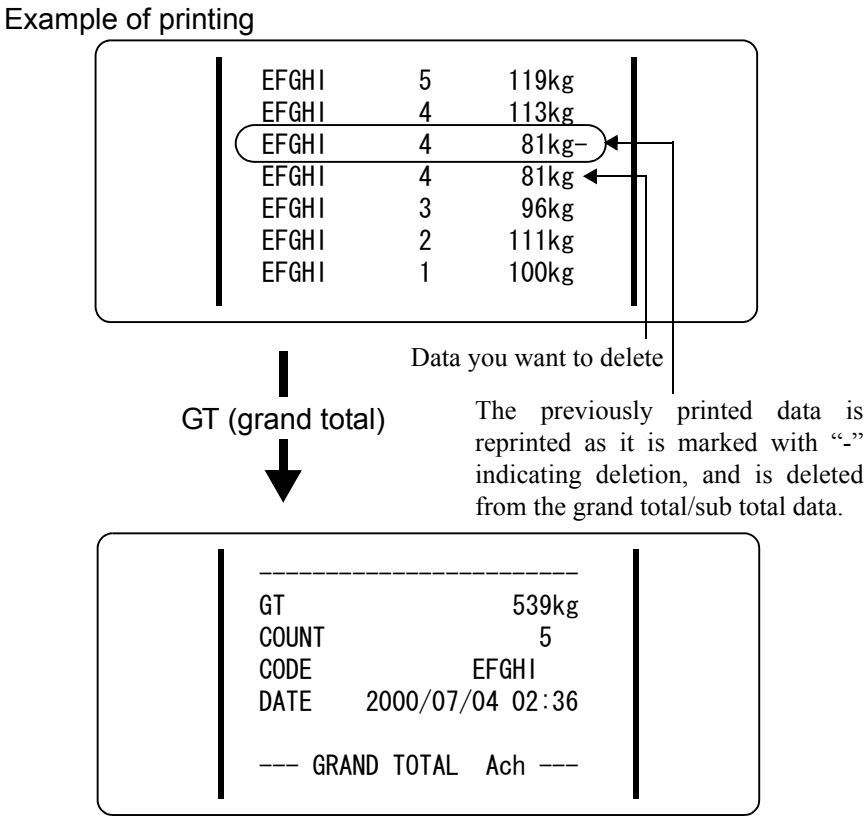
■ If range over (U/L) and over status (R) (See the preceding page.) occur at the same time, over status (R) is printed.

■ Range over is a guide for users to know whether or not printed values exceed the range. Sub totals and grand totals are not affected.

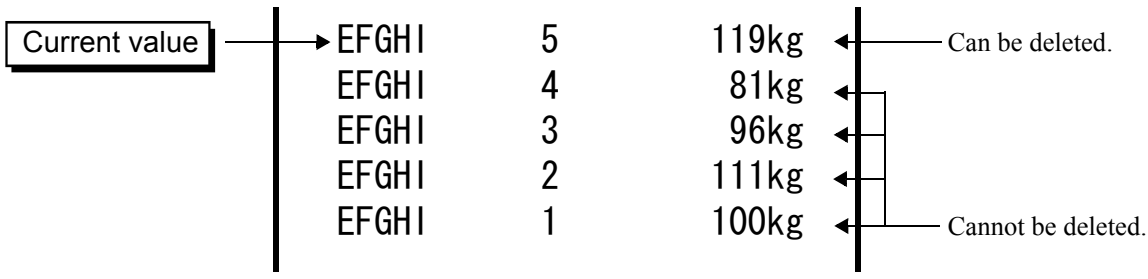
Delete print

Use if you want to delete printed data (when you do not want to add the data to subtotals/grand totals). Only one piece of the last printed data can be deleted.

Press [DEL] → [ENT] in the print mode, and the data is deleted.


Example of printing
EFGHI 5 119kg
EFGHI 4 113kg
EFGHI 4 81kg-
EFGHI 4 81kg
EFGHI 3 96kg
EFGHI 2 111kg
EFGHI 1 100kg
Data you want to delete
GT (grand total)
The previously printed data is reprinted as it is marked with "-" indicating deletion, and is deleted from the grand total/sub total data.
GT 539kg
COUNT 5
CODE EFGHI
DATE 2000/07/04 02:36
--- GRAND TOTAL Ach ---

■ The data that can be deleted is only the previously printed data.



Note

■ Delete print cannot be performed twice or more successively.

■ In the case of double printing, delete print can be performed only for Bch.

Initialization

The internal memory of the M252A is completely cleared, and the parameters are restored to their factory default settings.

1. Turn on the power while pressing the [A] key.
2. Since the following is printed, press [ENT].

```
      Cancel --> ESC
      OK     --> ENT
----All data initial----
```

operating

To execute initialization: [ENT]

To cancel initialization: [ESC]

3. If the following is printed, initialization is successful.

```
------------------------
>> Complete
```

Note

■ Deleted data or settings cannot be restored. Carefully perform this operation.

ROM version print

Press [6] → [ENT] in the print mode, and the ROM version is printed.

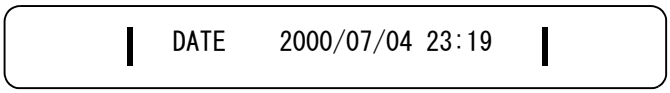
```
------------------------
Ver.1.03
------------------------
```

When the version is printed, the option name(s) is printed if any.

```
Ver.5.00        Op   232
Ver.5.00        Op   BCD
```

Date print

Press DATE 3 [DATE] → ENT FEED [ENT] in the print mode, and the current time is printed.



7 Troubleshooting

■ Classification of trouble 74
■ The printer does not operate properly 75
■ The printer does not function properly 77
■ Others 78

Classification of trouble

Find applicable trouble out of the following, and take remedies according to the reference page. If printing still cannot be generated properly, check the ROM version of the M252A body (See page 71) and contact us.

The printer does not operate properly.

The M252A does not start. P.71

Printing is not generated. P.71

Printing is not generated even if the ESC PRINT [PRINT] key is pressed. P.72

Although the printer head is running, nothing is printed. P.72

Printing stops while printing P.72

Values different from those indicated by the load cell indicator are printed. P.72

The printer does not function properly.

Printed counts are wrong. P.73

Values of sub totals/grand totals are wrong P.73

Others

Printing has been generated by mistake. P.74

The target value cannot be set. P.74

A pink line appears at the left end of the roll paper. P.74

The buzzer sounds when carrying out printing. P.74

The printer does not operate properly

Trouble 1 The M252A does not start.

Cause 1 The M252A is not connected to a power source.

Remedy1 Check that the power cord is fixed properly.

Cause 2 If the power LED does not light even though the M252A is connected to a power source, the fuse may have blown.

Remedy1 Since the fuse has been installed inside the M252A, disassembly is necessary for replacement. Therefore, it should be replaced by UNIPULSE. Consult your dealer representative or UNIPULSE.

Trouble 2 Printing is not generated.

Cause 1 Printing is not generated until the data input terminals (SI/F, BCD input, RS-232C) are connected properly and print data is sent.

Remedy1 Check to see if the connectors are inserted properly, and check for broken wires and miswiring.

Remedy2 Check that the equipment sending data to the M252A (indicator sending SI/F signals, PC sending RS-232C signals, etc.) operates normally.

Remedy3 In the case of a connection through the BCD input, check that the M252A and target equipment are consistent in logic.

Remedy4 In the case of a connection through the RS-232C, check that the M252A and target equipment are consistent in communication conditions. Settings that must be consistent include transmission rate, character length, start bit, stop bit and parity bit.

Cause 2 Printing is not generated if the Print Every ON/OFF setting is OFF.

Remedy1 Make the Print Every ON/OFF setting at ON.

Cause 3 The printer is clogged with dust or jammed with paper.

Remedy1 Open the push panel, and check the mechanical part of the printer. Remove dust with air or the like.

Remedy2 In the case of a paper jam, the printer is locked, so that [Print] and [Feed] cannot be used.
It may cause some trouble if you pull the paper fast or backward when you remove the paper. Please pull the paper forward slowly and straight to remove it after stopping the paper feed.
After removing paper, turn the power off and on again.

Trouble 3 Printing is not generated even if the ESC/PRINT [PRINT] key is pressed.

Cause 1 The ESC/PRINT [PRINT] Key setting is OFF.

Remedy1 Referring to "Print Key ON/OFF"(page 38), make the ESC/PRINT [PRINT] Key setting ON.

Trouble 4 Although the printer head is running, nothing is printed.

Cause 1 A ribbon cassette has not been installed, or the ribbon cassette is out of ink.

Remedy1 Referring to "Installing a ribbon cassette"(page 8), install or replace the ribbon cassette.

Trouble 5 Values different from those indicated by the load cell indicator are printed.

Cause 1 SI/F signals from the load cell indicator include indicated and various kinds of weight data irrespective of the value indicated by the indicator at that time.

Remedy1 Select data to be printed on the printer side. Set referring to "Print Data Selection Ach/ Bch" (page 25).

The printer does not function properly

Trouble 1 Printed counts are wrong.

Cause 1 Counts are stored in battery-required memory. If the power is turned off and on again with the battery exhausted, a problem occurs such that printing is not counted normally.

Remedy1 The battery needs to be replaced. Since the battery should be replaced by UNIPULSE, contact your dealer representative. The average life of the battery is approx. 8 years. The time may also be incorrect if the battery is exhausted.

Trouble 2 Values of sub totals / grand totals are wrong.

Cause 1 The decimal point position printed by the M252A depends on that of the indicator side. If the decimal point position on the indicator side is changed during printing, sub totals / grand totals are not calculated properly.

Remedy1 Never change the decimal point position of the indicator during printing. Change the decimal point position after finding grand totals and clearing print data.

Cause 2 Data to which over status (R print) is added is not added.

Remedy1 Check that over status (R print) is not added to the print data.
The over status occurs due to indicator side trouble. Troubleshoot it referring to the instruction manual of the indicator.

Others

Trouble 1 Printing has been generated by mistake.

Remedy1 The last piece of printed data can be deleted by delete print. For the details, see "Delete print"(page 70).

Trouble 2 The target value cannot be set.

Cause 1 The setting cannot be made if the total of the absolute value of the target value and the range exceeds 99999.

Remedy1 Since the initial value of the range is 99999, the target value cannot be set in a initial state. Referring to "Target value Ach/Bch and range Ach/Bch"(page 36), change the set value of the range before setting the target value.

Trouble 3 A pink line appears at the left end of the roll paper.

Cause 1 A pink line appears to the edge when the remainder of paper decreases. Have roll paper ready for replacement.

Trouble 4 The buzzer sounds when producing printing.

Cause 1 In the case where the input ch setting is single printing (the [Print Every Format] setting is other than double print), if printing is attempted without print data input from Ach or an optional interface, the alarm (buzzer) sounds, resulting in error printing. In the case of double printing (the [Print Every Format] setting is double print), if printing is attempted without print data input from both SIF Ach and an optional interface, and without print data input from SIF Bch, the alarm (buzzer) will sound, resulting in error printing. However, printing is produced for the ch with input.
See "Print data input ch's and alarm sound"(page 17).

Remedy1 Check to see if connection has been made properly according to the settings (single print or double print).

Cause 2 In Print- Every, Warning (Buzzer) will sound if number of code in each channel exceeds 32. In this case, Count to first code after GT Print, and print the code.

Remedy2 Please operate each channel with 32 code or less. When the GT Print is done, the number of code is reset to 0.

M E M O

Appendix

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■ List of unit settings 84
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Setting mode list

* Bold Character : Initial setting value

No.	Name of setting	Details of setting	Page
01	Date/Time	Current Date/Time	24
02	Print Data Selection Ach	**0. Gross** 1. Net 2. Tare 3. Indicated	25
03	Print Data Selection Bch	**0. Gross** 1. Net 2. Tare 3. Indicated	25
04	Unit Selection Ach	See the "List of unit settings"(page 84) **(Initial value of kg)**	26
05	Unit Selection Bch	See the "List of unit settings"(page 84) **(Initial value of kg)**	26
06	Print Every ON/OFF	0. OFF **1. ON**	26
07	Print Every Format	**0. Standard** 1. with time 2. with code 3. with time & code 4. with date 5. with date & code 6. Diagram 7. Double size 8. Double print 9. Double with cnt 10. Double with code 11. Ach <-- A or B 12. Through print	27
08	Automatic Print ON/OFF	0. OFF **1. ON**	29
09	Interval Print ON/OFF	**0. OFF** 1. ON	30
10	Interval Seconds	1 ～ 9999 seconds **(Initial value of 0003 seconds)**	30
11	GT/ST Print Format	**0. Standard** 1. with code 2. with ave/max/min 3. with statistical 4. with histogram	31
12	Types of Sub Totals	**0. Middle sub** 1. Section sub	33
13	Histogram Target Value Ach	**Initial value +00000**	34
14	Histogram Range Ach	**Initial value 99998**	34
15	Histogram Target Value Bch	**Initial value +00000**	34
16	Histogram Range Bch	**Initial value 99998**	34
17	Standard Deviation	**0.** σ_n 1. σ_{n-1}	35
18	Data Adding ON/OFF	0. OFF **1. ON**	36
19	PRINT Key ON/OFF	0. OFF **1. ON**	36

No.	Name of setting	Details of setting	Page
20	Batch Total ON/OFF	**0. OFF** 1. ON	37
21	Feed Lines	0 ～ 9 **(Initial value of 0)**	38
22	Code Selection Method	Ach **0. Key Board** 1. Option 2. Key Table 3. Option Table Bch **0. Key Board** 1. Key Board 2. Key Table 3. Key Table	38
23	Number of Code Digits Designation	1 ～ 6 **(Initial value 6)**	39
24	Code Table Registration Ach		39
25	Code Table Registration Bch		39

Option setting mode list

No.	Name of setting	Details of setting	Page
41	BCD Decimal Point Position	0. *.**** 1. **.*** 2. ***.** 3. ****.* **4.** *****	45
42	BCD Data Logic	**0. Negative** 1. Positive	45
43	BCD Minus Logic	**0. Negative** 1. Positive	45
44	BCD Over Logic	**0. Negative** 1. Positive	45
45	BCD Strobe Logic	**0. Negative** 1. Positive	45
46	RS-232C Transmission Rate	0. 1200bps 1. 2400bps 2. 4800bps **3. 9600bps**	47
47	RS-232C Parity Bit	0. Even **1. Odd** 2. Non	47
48	RS-232C Data/Stop Bit	**0. 7bit 1stop** 1. 7bit 2stop 2. 8bit 1stop 3. 8bit 2stop	48
49	RS-232C Terminator	0. CR **1. CR+LF**	48
50	RS-232C Answer Mode	**0. MODE0 (M250 Mode)** 1. MODE1 (M252 Mode)	48

Maintenance mode list

No	Name of setting	Page
1	Test Print	60
2	Sample Print	60
3	Self Test	61
4	Parameter List	61
5	Test Mode	61

List of unit settings

NO.	Unit	Type	NO.	Unit	Type	NO.	Unit	Type
00	No unit		44	μg	Mass	87	mPa•s	Viscosity
01	g	Mass	45	mg		88	Pa•s	
02	kg		46	Mg		89	cm	Length
03	t		47	oz		90	in	
04	lb		48	TONNE		91	ft	
05	m	Length	49	μN	Force	92	t/min	Mass flow
06	μm		50	mN		93	ℓ/min	Flow
07	mm		51	MN		94	rad	Angle
08	km		52	dyn		95	°	
09	m^3	Volume	53	kdyn		96	deg	
10	cm^3		54	μN•m	Torque	97	m^2/s	Viscosity
11	ℓ		55	mN•m		98	mm/s	Speed
12	mℓ		56	kN•m		99	m/min	
13	m/s	Speed	57	MN•m		100	m/h	
14	km/h		58	g•cm		101	μA	Current
15	m/s^2	Acceleration	59	kN•cm		102	mA	
16	Hz	Frequency	60	t•cm		103	A	
17	kHz		61	t•m		104	kA	
18	MHz		62	ft•lb		105	μV	Voltage
19	rpm	Revolution speed	63	in•lb		106	mV	
20	kg/m^3	Density	64	in•oz		107	V	
21	N	Force	65	ftH2O	Pressure	108	kV	
22	kN		66	inH2O		109	W	Power
23	kg•m	Torque	67	kN/cm^2		110	kW	
24	kg•cm		68	kN/m^2		111	MW	
25	N•m		69	μPa		112	VA	
26	Pa	Pressure	70	mPa		113	J	Work
27	kPa		71	hPa		114	kJ	
28	MPa		72	GPa		115	MJ	
29	mmHg		73	μbar		116	%RH	Humidity
30	kg/cm^2		74	mbar		117	ppm	Ratio
31	N/m^2		75	bar		118	pH	Acidity
32	kg/s	Mass flow	76	psia		119	G	Acceleration
33	kg/h		77	psig		120	gal	
34	t/s		78	atm		121	count	Times, Frequency
35	t/h		79	g/cm^3	Density	112	pulse	
36	m^3/s	Flow	80	t/m^3				
37	m^3/h		81	gmℓ				
38	ℓ/s		82	gℓ				
39	ℓ/h		83	mg/m				
40	K	Temperature	84	kg/m				
41	℃		85	kgm/s	Momentum			
42	℉		86	$kg•m^2$				
43	%	Percentage						

Note

When the number of characters is five characters, it becomes a print only the head four characters in the double size print.

Character input table

Key	1	2	3	4	5	6	7	8	9	10	
A 1	1	A	B		ア ※	イ ※	ウ ※	エ ※	オ ※		Back to the first character.
B 2	2	C	D	E	カ ※	キ ※	ク ※	ケ ※	コ ※		
DATE 3	3	F	G	H	サ ※	シ ※	ス ※	セ ※	ソ ※		
START 4	4	I	J	K	タ ※	チ ※	ツ ※	ッ ※	テ ※	ト ※	
STOP 5	5	L	M	N	ナ ※	ニ ※	ヌ ※	ネ ※	ノ ※		
6	6	O	P	Q	ハ ※	ヒ ※	フ ※	ヘ ※	ホ ※		
7	7	R	S	T	マ ※	ミ ※	ム ※	メ ※	モ ※		
8	8	U	V	W	ヤ ※	ャ ※	ユ ※	ュ ※	ヨ ※	ョ ※	
9	9	X	Y	Z	ラ ※	リ ※	ル ※	レ ※	ロ ※		
F 0	0	ー	／	＊	ワ ※	ヲ ※	ン ※	゛ ※	゜ ※		
— ST	— (hyphen)										
SP GT	Space (Character deletion is made.)										
DEL	Advances one character. (Character deletion is not made.)										

※ Marks express the Japanese syllabary.

■ After switching to the tenth character, you will return to the first character.

■ Blank parts in the table function in the same way as the space (character deletion).

List of error messages

Error1

This error is printed if [Print Every Format] is selected when the [Print Every] setting is OFF.

⇒ Check the set value of [06: Print Every ON/OFF] (page 26).

Error2

This error is printed if [Batch Total] is turned ON when the [Print Every Format] setting is "Double print", "Double with count" or "Double with code".

⇒ Check the set value of [07: Print Every Format] (page 27).

Error3

This error is printed if "Double print" or "Double with count" is selected under [Print Every Format] when the [Batch Total] setting is ON

⇒ Check the set value of [20: Batch Total ON/OFF] (page 39).

Error4

This error is printed if a code selection table is selected when the [Code Selection] setting is not 2 or 3.

⇒ Check the set value of [22: Code Selection] (page 40).

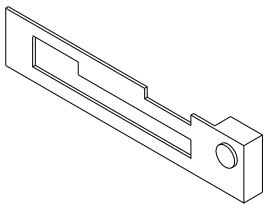
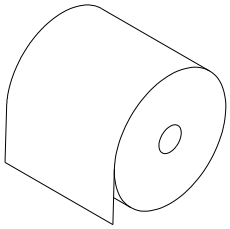
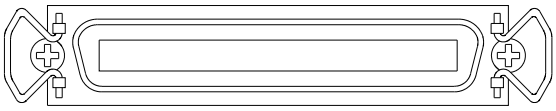
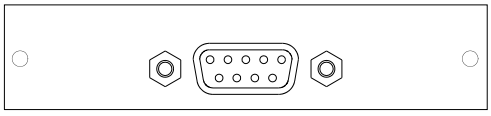
Error5

This error is printed if a value not included in the setting items is input.

Error

This error is printed if the set value is out of the input range.

Introduction of consumables and options

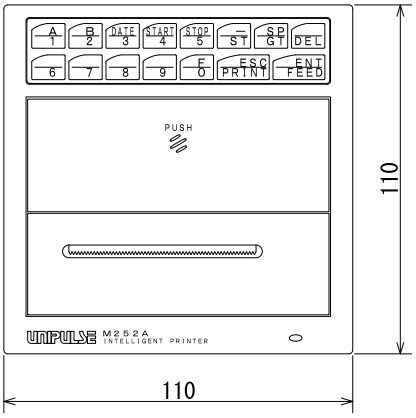
Ribbon cassette (consumable)	PR350/10 (10 pieces in a set) 
Printing paper (consumable)	PP350/10 (10 rolls in a set) Width: 57.5 ± 0.5mm, Diameter: 60mm, Overall length: 30m 
BCD input interface (option)	Attachment connector（57-30500DDK） 
RS-232C interface (option)	

Product specifications of the M252A

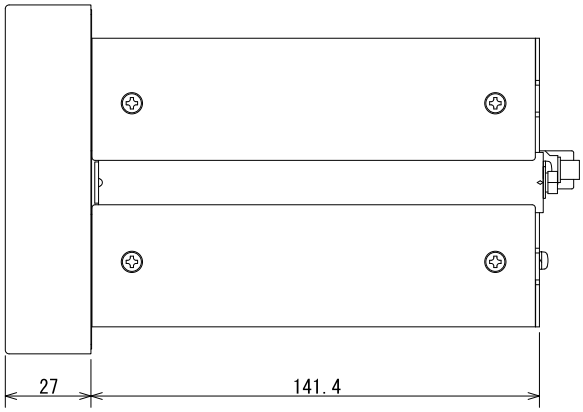
Printer section	
Printing system	5 × 7 dot impact system
Print speed	Approx. 2.5 lines/sec. (approx. 60cps)
Number of print digits	24 digits
Ink ribbon	Ribbon cassette
Printing paper	Roll paper (PP350) width: 57.5 ± 0.5mm, diameter: 60mm, overall length: 30m) Number of printable lines: Approx. 8,000 lines/roll Duplicate roll paper (PP350-2P) width: 57.5 ± 0.5mm, diameter: 60mm, overall length: 20m) Number of printable lines: Approx. 5,900lines/roll
Durability	MCBF 1,000,000 lines or more (Roll paper: Approx. 200 rolls or more)
Setting section	
Setting method	Front panel keys
Storage of set values	Set values: Stored in NOV-RAM (nonvolatile memory). Data: SRAM (backed up by a lithium battery).
Settings	See "Setting mode list"(page 82).
Main functions	
Printing methods	Print with the PRINT key. Print by print command input (PRINT terminal). Print by automatic print command input (SI/F, RS-232C). Automatic print by interval setting.
Print data	Date, time, measured value, code (6-digit), count (1-9999 times), subtotal (9-digit), grand total (9-digit), batch total, target value, range, maximum value, minimum value, average, standard deviation, range (maximum - minimum), diagram, histogram
Functions	GT/ST print, batch total, code classification, delete print, over print, initialization, maintenance, double print
External input signal	
Rear terminal block	(1) COM, (2) FEED, (3) PRINT, (4) ST, (5) GT Connector: WAGO 5pin

Interface		
Rear terminal block		(6-7) SI/F-Ach, (8-9) SI/F-Bch
Option		BCD input interface Connector: DDK-manufactured 57-30500 or equivalent
Option		RS-232C interface Connector: D-Sub 9pin (CN33)
General performance		
AC Spec.	Power supply voltage	100V to 240V AC (+10%, -15%)
	Power consumption	On standby: Approx. 2.8VA During print: 20VA (maximum), Approx. 8VA (average)
	Inrush current	15A (5msec): 100V AC max. load condition (ordinary temperature, at cold-start) 30A (5msec): 200V AC max. load condition (ordinary temperature, at cold-start)
DC Spec. (Depending on the request at the time of order)	Power supply voltage	12V to 24V DC (± 15%) (voltage between terminals of the M252A)
	Current consumption	On standby: Approx.150mA rms During print: 10A peak (maximum) (Approx. 2msec, Histogram format printed) Approx.800mA (average) (Print Every Format printed)
	Inrush current	1A peak (maximum) (150msec) (ordinary temperature, at cold-start)
Working conditions		Temperature: Operating temperature range 0 to +40 ℃ Storage temperature range -20 to +70 ℃ Humidity: 85%RH or less (non-condensing)
Outer dimensions		110W × 110H × 168.4D (mm) (not including projections)
Panel cutting dimensions		92W × 92H (mm)
Weight		Approx. 1.4kg

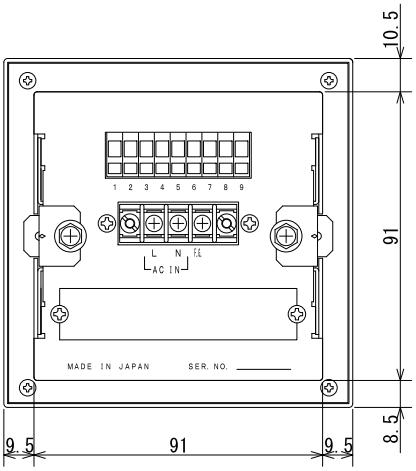
External views



[Front]



[Side]



[Rear]